

DataEase Designer's Guide

Chapter I : Introduction

Copyright and Trademarks	13
Sales and Support	13
Acknowledgements	14
Welcome to the Designer's Guide	15
Who Should Read this Book	15
How the Book is Organized	16
Typographical Conventions	16
Getting Help	16
Sample Application	17
How Club ParaDEASE Works	17
Viewing Documents	18
User View	18
Designer View	19
The Toolbars	20

Chapter 1 : DATAEASE Fundamentals

Creating Database Applications in DataEase	21
What is Designer View?	22
What is a DataEase Application?	22
Types of Databases	23
Displaying the Application Catalogue	24
Creating Documents	25
Creating Forms for Record Entry	25
Placing Fields on a form	26
Defining Field Characteristics	27
Displaying forms for Record Entry	28
Defining Relationships	29
Using 'lookup' to enter data	30
Using 'lookup' from the Goto Menu	30
Displaying a Related Form	31
Viewing Records in a Multiform	31
Creating a Report to Retrieve Data	32
Parts of a Report	32
Query by Model	32

Creating Report Layouts	35
Printing a Report	36
Designing Custom Menus	37
Creating a DQL Procedure	38
DataEase Toolbars	40
Object Palette	42
DataBase Styles	43
Object Express Menus	44
Starting DataEase	45
File Menu Options	45
Desktop Toolbar	46
Controlling Access to Applications	47
Providing Help for Application Users	48

Chapter 2 : Normalization

Creating and Normalizing Database Tables	49
What is Normalization?	49
Analyzing the Data in an Application	49
How is the Data Organized?	49
Where does the Data Come From?	49
Is the data Dynamic or Static?	50
Database Tables	51
Choosing Unique Keys	51
Creating Composite Keys	53
Defining Field Characteristics	53
Determining Field Data Options	54
Designing a Database	55
Determining the Data Users Need	55
Listing the Information You Want to Track	55
Normalizing Database Tables	56
Removing Repeating Columns	57
Removing Columns not Dependent on the Primary Key	58
Avoiding Blank Values	59
Avoiding Redundant Values	60
Replicating Columns in Exceptional Circumstances	60

How Forms and Tables Relate	61
Using Multiple Views	62
Determining Types of Forms	62
Defining New Views Using QBM	62
Linking Database Tables	63
Planning Relationships	63
Defining Relationships	63
Relationships Form Options	64
Determining the Type of Relationship	64
Diagram of Club ParaDEASE Database Tables	68
How to Design a Database	69
How to Create an Application	69
How to Create a Form that Defines a Database Table.	70
How to Define a Relationship between two fields	70

Chapter 3 : File Menu

The File Menu	71
Creating a Document	72
New Cascade Menu Options	72
Types of Documents	73
Location of DataEase Documents	75
Creating a Document Overview	75
New Document Dialog Options	77
Creating a Form that defines a Table	79
New Table Display Options	79
How to create a Form and Table	80
How to Create a Form Over an existing Table	80
Creating a Form or Report that uses a Database Table	81
Creating a Document Layout	82
Layout Options Dialog Options	83
Modifying Layouts	84
How to create a form with a Custom Layout	84
How to create a form over a DataEase DOS Table	84
How to create a Report	85
How to create a Custom Menu	85

Opening a Document	86
Open a Document Dialog Options	86
Maximum Number of Open Documents	86
Opening a Document that Accesses an SQL Table	86
Login Failure Dialog Options	86
How to Open a Document	87
Closing a Document	87
Deleting a Document	87
Deleting a Form that Defines a Table	88
How to Delete a Form and/or Table	88
Saving a Document	89
Document Save As a New Table Dialog Options	89
How to Save a Document	89
Defining a New Table	90
Modifying an Existing Table	90
How to Save a Modified Table	91
DataEase DOS filenames	91
How DataEase Assigns DOS Filenames	91
Saving a Style Sheet	93
Save Style Sheets Dialog Options	93
How DataEase Stores a Style Sheet File	93
Printing Document Design Information	94
Print Dialog Options	94
Canceling a Print Job	95
How to Print a Document Layout	95
Setting up the Printer	96
Print Setup Options Dialog	96
Sequence of Print Dialogs	98
How to Change the Default Printer	98
How to Set Printer Default Settings	98
Importing Data	99
When to Use Import	99
Switching from Designer View to User View	100
Closing an Application and Exiting DataEase	101
How to Close an Application or Exit DataEase	101

Chapter 4 : Edit Menu

The Edit Menu	102
Selecting Objects	105
How to Select an Object	105
Correcting a Mistake	105
How to Undo and Redo an Action	106
Editing Objects	107
How to Paste an Object in a New Location	107
Linking and Embedding an Object from another Windows Program	108
When to Choose Object Linking	108
When to Choose Object Embedding	108
OLE Object Summary	109
Linking an Object to a DataEase Document	110
OLE Object Cascade Menu	111
Pasting an Object in a Selected Data Format into a DataEase Document	113
Paste Special Dialog Options	113
Aligning Objects	115
Align Cascade Menu Options	115
How to Allign Objects	116
Making Objects the Same Size	117
Same Size Cascade Menu	117
How to make several objects a uniform size	118
Selecting All Objects in a Document	118
How to select All or Most Objects	118
Editing Links	119
Links Dialog Options	119
Change Link Dialog Options	119
How to Change the Update Method	120
How to Update a Manual Link	120
How to Break a Link	120
How to Restore a Broken Link	120
Modifying Key Attributes of Objects	121
Searching for Text Strings in a DQL Procedure	122

Chapter 5 : View Menu

The View Menu	123
Viewing Parts of a Document	126
Viewing the Body of a Document	127
Creating an Modifying Page Headers and Page Footers	127
Creating an Modifying Summary Headers and Summary Footers	128
Viewing the Data-Entry Form	129
Viewing the DQL Script Editor	130
Displaying Hidden Outlines	131
How to Display a Hidden Object's Borders	131
Displaying Form and Record Labels	132
How to Show or Hide Form/Record Labels	132
Displaying Rulers	133
Displaying the Grid	134
How to Show or Hide the Grid	134
Changing the Settings on the Grid and Ruler	135
Grid and Ruler Options Dialog Options	135
How to Change the Ruler Settings	136
How to Change the Grid Settings	136
Enlarging or Reducing the Window View	137
Displaying the Toolbar	138
Displaying the Object Palette	140
Displaying the Status Bar	140
Viewing the Applications Catalog	141
Expanding or collapsing a Catalog List	141
Opening a Document from the Application Catalog	141
Viewing Status Information from the Catalog	142
Viewing the Application Catalog When in a Document	142
Displaying SQL Statements	143
How to Display SQL Statements	143

Chapter 6 : Objects Menu

The Objects Menu	144
What is an Object?	145
Common Document Option Operations	146
Creating Document Objects	146
Selecting, Resizing, and Moving Document Objects	146
How to Select one or more Objects	147
How to resize an Object	147
How to Move an Object	148
How DataEase arranges overlapping Objects	148
How to Select an Overlapping object	149
Restrictions on Creating and Editing Document Objects	149
Using Object Express Menus	150
How to Open an Object Express Menu	150
Using Common Object Definition Dialogs	150
Display Attributes Dialog Options	151
Color Dialog Options	152
How to change an Object's color	154
How to define Custom Colors	155
Font Dialog Options	156
How to Change an Object's Font	156
Action Selection Dialog Options	157
How to Assign an Action to an Object	157
Layout Options Dialog Options	158
How to Specify layout Options	160
Defining Document Objects	161
Creating a Text Object	162
Creating a Field Object	164
Text Data Type	167
Numeric String Data Type	168
Number Field Data Type	170
Currency Field Data Type	171
Date Field Data Type	173
Time Field Data Type	174
Sequenced ID Field Data Type	175
Choice List Data Type	176
Yes/No Field Data Type	178
Memo Field Data Type	179

Field Data Options	180
Derivation Formula	183
Validation Formula	188
Field Help Messages	192
The Summarize Field Property	193
Display Attributes Dialog Box	195
How to Create Field Objects	196
Creating a Subform Object	198
Form Definition Dialog Options	200
Creating a Button Object	201
Creating a Picture Object	203
Drawing Graphic Objects	206
Creating an Application Variable Object	207
Creating a Summary Variable Object	210
How to Create a Page Total	213
How to Create a Running Total	213
Creating an OLE Object	214
Create OLE Object Dialog Options	216
Adding Sound and Video to a Document	217
How to Add a Sound Clip	218
How to Add a Video Clip	218
Creating a Custom Field	219
Image Fields and Picture Objects	220
Image Fields	220
Creating, Modifying, and Applying an Object Style	223
Style Sheets	224
Creating Style Sheets	226
Updating Style Sheets	226
Deleting Style Sheets	227
Applying Style Sheets	227

Chapter 7 : Document Menu

The Document Menu	229
Defining Document Properties	230
Document Properties Dialog Options	230
Setting Printing Defaults	233
Document Print Options Dialog	233
Setting Security Levels	236
Document Security Dialog Options	236
How Document and Field-Level Security works	237
How Document Security works with SQL Engines	237
Using Query by Model to View or Change a Document's Structure	238
Document Creation and Editing Process	239
Query by Model Dialog Options	239
Adding a Table to the Related Tables List Box	241
New Relationships Options	242
Selecting Records	242
Sorting Records	243
Grouping Records	243
Grouping Records in a Related Table	244
Grouping Records in a Single Table	245
Generating Statistics	246
Designing the Layout for a New Document	247
Layout Dialog Options	247
How to View a Document's Data Structure	248
How to Add a Subform to a Document	248
Setting a Custom Tab Order	251
Multiform Tab Order	252
Viewing and Setting the Tab Order	252
Improving Query Performance	254
Document Performance Dialog Options	254
Using Clustering to Improve Performance	255
Indexing Clustered Columns	255
Determining When to Cluster Tables	255
Determining When to Avoid Clustering	255
Reorganizing a Form to Improve Performance	256
Customizing Menus	257
Modifying Pull-Down Menus	257
Menu Editor Dialog Options	258
Displaying the Toolbar in User View	263

Chapter 8 : Application Menu

The Application Menu	264
Generating DataEase System Forms	265
DataEase System Administrator	265
SQL System Administrator	265
Using Windows to set System Functions	266
Controlling Access to an Application	266
Users Form Options	266
Minimum DataEase Security Levels	268
Linking Tables by Using Match Fields	271
Relationships Form Options	271
Changing the way DataEase Joins SQL Tables	276
Custom-Defined Functions	278
Registering a CDF	279
Custom Functions Dialog Options	279
Using a CDF with DataEase	281
Linking Databases in a Client-Server Environment	282
SQL Database Link Requirements	282
Linking a DataEase Application to an External Database	283
DataEase Links Dialog Options	283
Maintaining an Application	286
Utilities Cascade Menu Options	286
Reorganizing a Form to Recover Disk Space	287
Backing Up Application Files	288
Restoring an Application	290
Installing Documents	293
Locking an Application	298
Viewing Application Status Reports	299
Status Cascade Menu Options	299
Viewing a Record Status Report	299
Viewing a Server Status Report	300
Viewing a Document Status Report	300
Viewing an Import Status Report	301
Customizing the Application Status Report	301
Setting Preferences for an Application	302
Application Preferences Dialog Options	302
Desktop User Vire Options	302
Designer View Options	305
Data Value Options	307

Chapter 9 : Window Menu

The Windows Menu	309
-------------------------------	------------

Chapter 10 : Help Menu

The Help Menu	310
----------------------------	------------

Appendix A : Foreign Databases

Designing Applications in a Client-Server Environment	311
Built-In Database Engine Support	311
Using Foreign Data Sources in Designer View	311
Using DataEase with Foreign Database Engines	312
Linking to a Foreign Database	312
Refreshing a Database Link	312
Adding an ODBC Database Link	313
Restrictions on using ODBC Database Tables	314
DBASE datatype Conversions.....	315
User Privileges and Permissions	316
SQL Engine Functions	316
Automatic Granting of User Permissions	316
Creating Forms and Tables	317
Owning versus Using a Table	317
DataEase Form Definition Files	317
Where DataEase Files are Stored	318
Defining Fields	318
Modifying and Deleting Forms	321

Appendix B : Custom Defined Functions

Using Custom-Defined Functions with DataEase	322
Using a Windows Dynamic Link Library	322
Restrictions on Creating CDFs.....	322
Writing a CDF	323
Specifying the Prototype Definition	323
Including an Initialization Function	323
Including a Termination Function	323
Creating a Module Definition File for the Windows DLL File	323
Creating a Windows Dynamic Link Library File	325
Creating a Library File with Microsoft C	325
Creating a Library File with Borland C	325
Naming and Storing DLL Files	325
Registering a CDF	326
Passing Parameters to CDFs	326
Passing Values to a CDF	326
Modifying Parameters.....	327
Using a CDF with DataEase	327
Executing CDFs in Different DLL Files	327
Sample CDF	328
Running the CDF from a Field Derivation (or Validation Formula)	328
RNDWIN.DLL: The Source Code	330
 Index	334

Copyright and Trademarks

This manual supports DataEase version 6.5 and higher.

Publication Date: December 2003

© DataEase International Ltd. All rights reserved.

DataEase is a registered trademark, and the symbol and slogan are trademarks of DataEase International Ltd.

All other trademarks and registered trademarks belong to their respective holders.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means: electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

Sales and Support

United Kingdom

**Sapphire International
Lambourne House
7 Western Road
Romford
Essex
RM1 3LD**

Tel: +44 (0)1708 333 700

Fax: +44 (0)1708 333 800

email UK Sales

email UK Technical Support

United States

**Sapphire International Limited
3060 Main Street
Suite 202
Stratford
Connecticut 06614**

Tel: +001 203 375 8668

Fax: +001 203 375 1965

email US Sales

Acknowledgments

DataEase 6.5 is the product of:

Peter J. Tabord

Engineering

Eugene V. Bragin

Paul Davis

Andrey Drozdov

Alexander P Dymov

Duncan Ferguson

Kevin Glossop

Alexander N. Glushakov

Andrew Y. Puzfrew

Quality Assurance

Tim Griffith

Mark Povey

Wayne Roberts

Catriona Tabord

Anne Williams

Documentation

Dave Morgan

Marketing

Katia Robertson

Paul Temple

Training

Simon Irwin

DataEase wishes to thank all our customers, especially those who served as beta testers and those who contributed suggestions, ideas, and their valuable time.

Welcome to the Designer's Guide

Welcome to the **DataEase Designer's Guide**. This book explains how to create databases, design documents, and use the following special application development features.

- Application Catalog
- Toolbars
- Menus
- Data Model
- Layout Options
- Document Objects
- Database Styles
- Command Buttons
- Custom-Defined Functions
- SQL Connectivity

This online book includes an introduction to DataEase application development concepts, guidelines for using DataEase as a front-end tool in a Client-server environment, and reference information for all the application and database design features of DataEase.

Who Should Read this Book?

This book is written for professional application designers, system administrators, and experienced users who may want to design their own applications.

If you are not familiar with DataEase, we recommend that you begin by performing the hands-on lessons in the **DataEase Quick Start Guide (QSG)**.

If you are an application designer, system administrator or experienced user who wants to extend the power of your applications by creating DataEase Query Language (DQL) programs, you'll find the information you need in the **DataEase DQL Programmers Guide**

Note: If you haven't installed DataEase, follow the installation instructions in Appendix A on the User's Guide. For information about using DataEase to access an application built with a character-based version of DataEase, see the **Conversion Guide**.

How this book is Organized

Chapter 1: An introduction to Application design in DATAEASE, explaining terms and concepts.

Chapter 2: Principles of Database design

Chapter 3: The FILE Menu - all the options explained.

Chapter 4: The EDIT Menu - all the options explained.

Chapter 5: The VIEW Menu - all the options explained.

Chapter 6: The OBJECTS Menu - objects explained.

Chapter 7: The DOCUMENT Menu - properties, security, Custom Tabs and Menus.

Chapter 8: The APPLICATION Menu - application preferences, SQL, Maintenance.

Chapter 9: The Window Menu - how to arrange windows on screen.

Chapter 10: The Help Menu - summary of available Help.

Appendix A: Foreign Databases and Client-server.

Appendix B: Custom Defined Functions.

Typographical Conventions

Throughout the DataEase manuals, we've used the following typographical conventions to make the documentation easier to understand.

Term	Typeface Used	Example
Glossary Term	Italic	<i>Data Model</i>
Menu Option	Bold	File>>Open
Function Key	Uppercase	F7 DELETE RECORD
Document/Table Name	Uppercase	MEMBERS
Field Name	Small Capitals	FIRST NAME
DQL Term	Bold Lowercase	highest of
SQL Command	Uppercase	CREATE TABLE

Glossary terms with special meaning in DataEase are printed in italics the first time they occur in the text and are defined in the on-line glossary available in Help.

Getting Help

The Help menu on the right end of the Menu Bar is used to access the DataEase Help system. The DataEase Help system is a separate hypertext program that runs in its own moveable, resizable window and operates concurrently with DataEase. This program uses many of the standard navigational tools the Windows Help system provides.

To quickly access the DataEase Help system, press F1 HELP. To display specific help on a menu option, dialog, or Toolbar button, press Shift + F1 CONTEXT-SENSITIVE HELP.

Sample Application

Club ParaDEASE, the sample application shipped with DataEase, is based on a fictitious travel industry organization. This application is used throughout the DataEase documentation to illustrate data entry, application query, form/report design, and other important procedures, and help you learn how to use a DataEase application in a realistic context.

Our sample application, **Club ParaDEASE**, runs an expanding set of resort clubs situated in exotic locales around the world. Each club provides the setting for a weeklong vacation package, with air/land travel arrangements, accommodations, and other hospitality services included at a discount price. Special facilities, equipment, and intensive training workshops are offered for various sport activities at each club.

How Club ParaDEASE Works

Club ParaDEASE uses forms to enter, update, and report information about Clubs, Activities, Members, Reservations, and other aspects of club business. The DATAEASE Quick Start Guide explains Club ParaDEASE in detail. An example document - The CLUBS form - is shown below.

The screenshot displays the 'CLUBS' form in the Club ParaDEASE application. The interface includes a sidebar with navigation buttons and a main form area with input fields, a description, a map, and a list of activities.

Club ParaDEASE
The Antidote to Documentation

CLUBS Previous Next

Club Name: Playa Blanca Telephone: (52) 333-20440

Street: 497 Costa de Chamela

City: Jalisco Country: Mexico

Club ID: 00001 Rooms: 196

New Save Delete Close Activities Reservations

Description:
Playa Blanca, located 120 miles south of Puerto Vallarta on Mexico's sunny Pacific coast, is our hottest winter holiday vacation spot. Enjoy snorkeling, deep-sea fishing, and peppery cuisine.

Activities

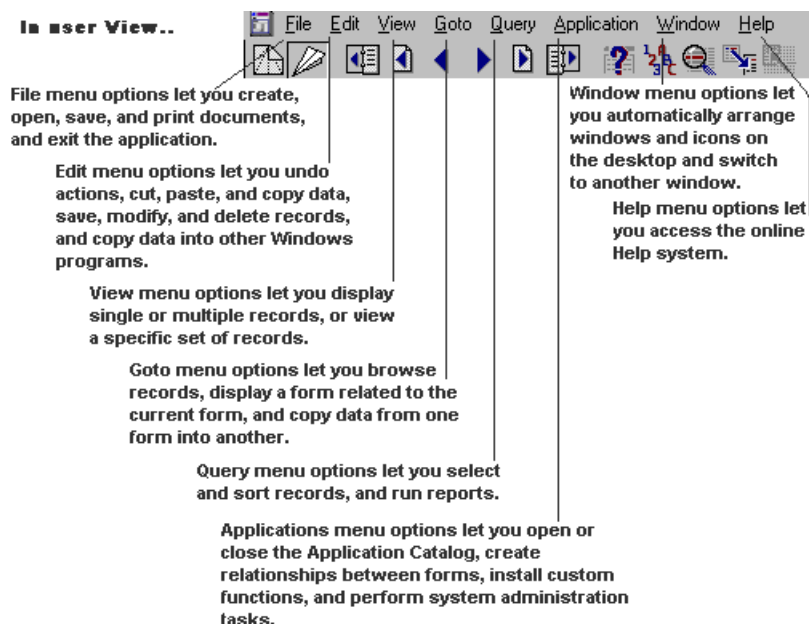
Playa Blanca

Baseball Waterski Biking Hangliding Snorkel Theater

Viewing Documents

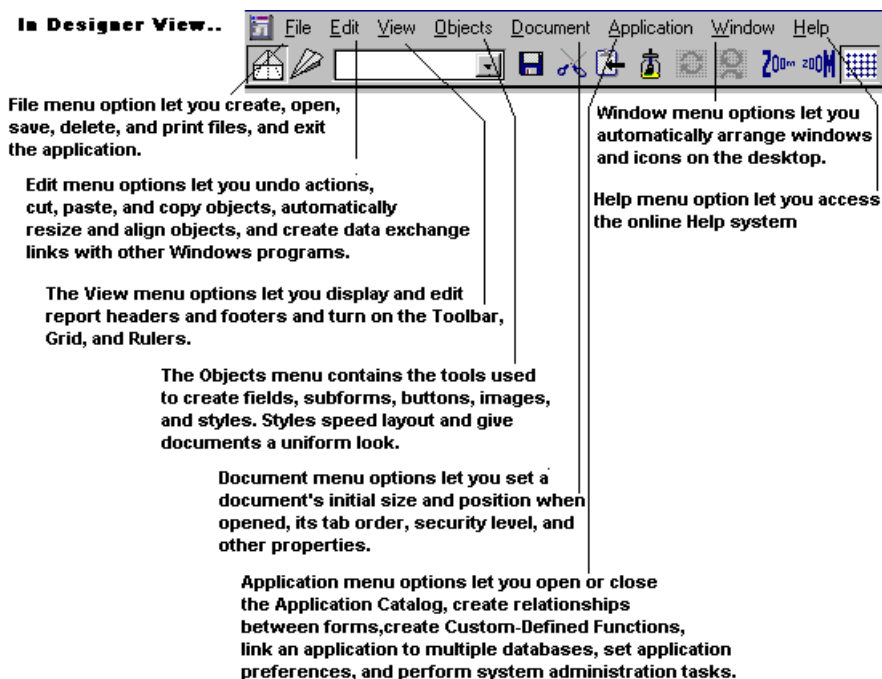
User View

User View is the **data-oriented** environment of DataEase. In User View, you can view data in a single record or multiple records, enter new records, modify existing records, create reports, and run previously defined reports. User View also lets you use Query By Form techniques to find specific records in a form. The figure below summarizes the menus available when you view a document in User View.



Designer View

Designer View is the **application design** environment of DataEase. In Designer View, you create the record entry forms, custom menus, and reports used in your application. Designer View lets you build special features into your application, including image fields, custom buttons, and direct links to other Windows applications (such as word processing, spreadsheet, and presentation graphics programs).

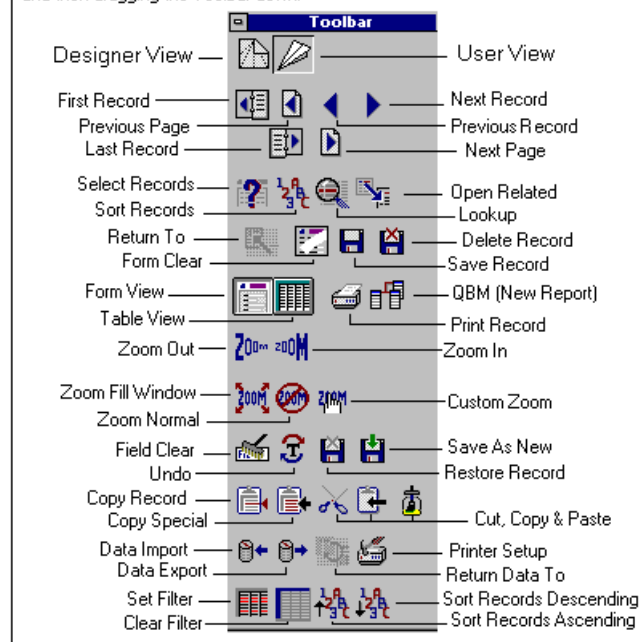


Although most menus on the DataEase Menu Bar are available in both views, each view has some unique menus as well as its own set of command buttons on the Toolbar.

The Toolbars

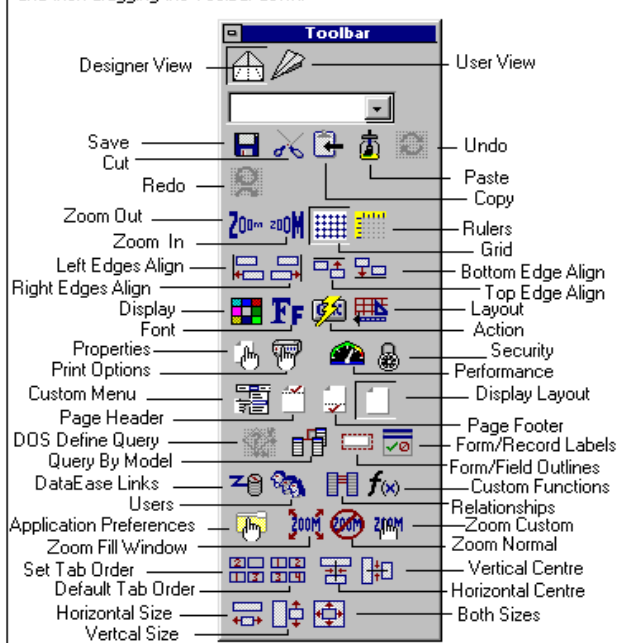
The User View Menu

DataEase Toolbars normally appear in a single line across the top of the screen, but you can display them as a moveable palette by right-clicking on the Toolbar, and then dragging the Toolbar down.



The Edit Menu in Designer View

DataEase Toolbars normally appear in a single line across the top of the screen, but you can display them as a moveable palette by right-clicking on the Toolbar, and then dragging the Toolbar down.



Chapter 1 : DataEase Fundamentals

Creating Applications in DATAEASE

DataEase is a powerful relational database system that provides the enhanced graphical interface, dynamic data exchange, and multi-tasking capabilities available in the Microsoft Windows environment. In addition, DataEase features transparent connectivity to multiple SQL and foreign PC databases through industry standard ODBC drivers..

This section provides a brief overview of the capabilities of Designer View as well as the design tasks involved in creating a DataEase application.

DataEase is a *relational* database system. A relational database system stores data in multiple tables that are linked by relationships that permit efficient data retrieval and manipulation.

Many of the following examples are taken from the DataEase sample application called *Club ParaDEASE*, an imaginary Travel organization. This application contains a number of database tables, including RESERVATIONS, MEMBERS and CLUBS. The imaginary users of this application spend a lot of time taking holiday bookings, and since Club ParaDEASE data is stored in a relational database, whenever a record is entered into the RESERVATIONS form, DataEase can automatically look up and retrieve most of the required information from the related CLUBS and MEMBERS tables.

As a relational system, DataEase maintains data integrity, i.e. the data throughout the database maintains its accuracy and consistency. For example, if you need to modify data duplicated in several records (such as a change of address), you need only make one modification. Related records are automatically updated in each location.

3	00003	Christino	Laura	4905 Radford Avenue
4	00004	Williams	Laura	17 Corinthian Way
5	00005	Riggs	Cynthia	11 Lilac Drive

Referential Integrity. Alter a value - such as an address - and this same change will be automatically applied to related records. In this example Cynthia Riggs's address is changed in the MEMBERS Form from "110 Lilac Drive" to "11 Lilac Drive". This change is automatically reflected in the RESERVATIONS Form.



RESERVATIONS

Previous

Next

Reservation ID: 00001

New

Save

Delete

Close

Members

Clubs

Member ID: 00005

Date: 11/05/94

Last Name: Riggs

First Name: Cynthia

Street: 11 Lilac Drive

City: Bar Harbor

State: ME

Zip Code: 04609-0000

Club ID: 00006

Departure City: Boston

Club Name: Magic Isle

Departure Zone: 1

Club Location: Haiti

Departure Date: 06/27/95

Rooms Required:

Reservation Detail

First Name	Last Name	Age	Price
Cynthia	Riggs	ADULT	1,300
Allison	Riggs	CHILD	520
Jeffery	Riggs	ADULT	1,300
			0
			0

Reservation Price

Total Adult Price:	2,600
Total Child Price:	520
Total Due:	3,120

What is Designer View?

Designer View is used to create database applications. Application design begins with conceptualizing and normalizing database tables, and defining relationships between tables. These tasks are discussed in detail in the next chapter.

Once conceptualization of your database is complete, the actual design of database tables, definition of the fields, and design of document layouts into which users enter new data is done in Designer View.

Application design includes designing database tables, forms, reports, menus, and procedures. The forms, reports, menus, and procedures are called documents in DataEase.

The four Document types of a DataEase Application are FORMS, REPORTS, MENUS and PROCEDURES. They are used as follows.

Document	Used to....
Form	Organize and store data - just like a normal paper form
Report	Extract and analyse the data from your forms.
Menu	Provide a custom interface for users of the application
Procedure	Provide a custom script of DataEase Actions

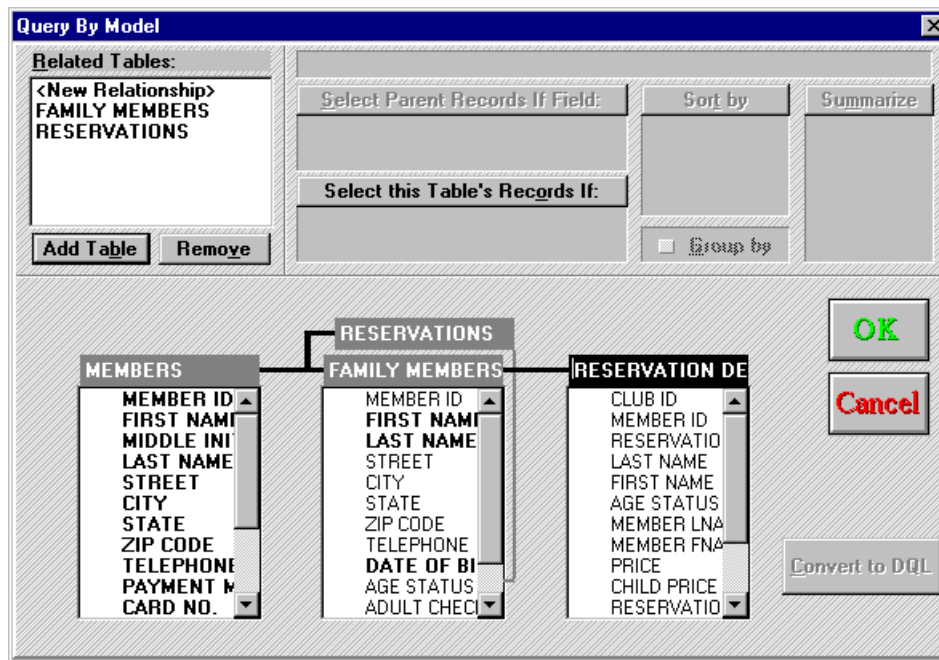
What is a DataEase Application?

A DataEase application is a collection of database tables and a set of forms, reports and menus that address a particular business need. An organization may need to use several applications, one for each system in which data is organized and accessed.

For example, an organization may find it efficient to create several separate DataEase applications. An example is shown below, where four Departments of a single organization choose to construct five applications.

Information Systems	
Department	Application
Human Resources	Employee Tracking
Accounting	Accounts receivable Accounts payable
Production	Inventory Management
Sales	Order Entry

At the core of each DataEase application is one or more databases. A database is a collection of related data tables. For example, the figure below shows some of the database tables in the Club ParaDEASE application in the Query By Model dialog.



Generally a database is created gradually as users add more data. This means that, although the number of columns in the data tables remains constant, the number of rows continues to increase.

For example, the RESERVATIONS table in the application expands each day as members make vacation reservations. The number of rows in the database table increases daily as new records (rows) are entered.

Types of Databases

DataEase works with two types of databases: Native and *foreign*. A Native database is a database stored in the DataEase format. A foreign database is stored in another format such as SQL Server, ORACLE, Paradox, or dBASE. DataEase lets you link many Native and many foreign databases to an application.

Displaying the Application Catalog

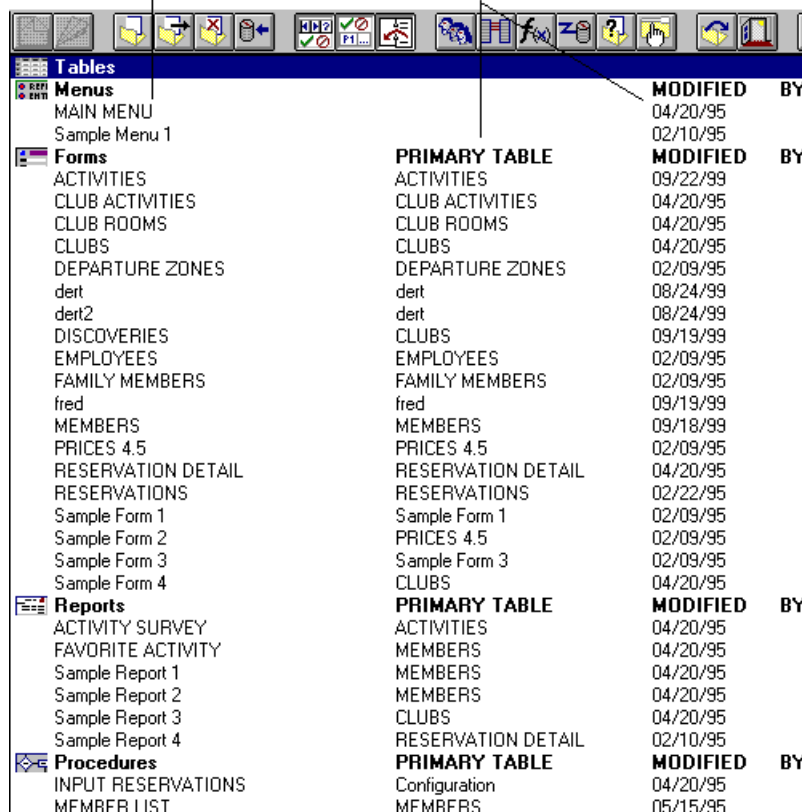
When you first sign on to an application, DataEase displays a list of all the databases, tables, and documents in the application. The catalog displays only the *custom* documents created by the application designer. DataEase system forms are NOT displayed.

The figure below shows the catalog for the sample Club ParaDEASE application. This application contains examples of all the document types discussed in this section.

Note: If you have not yet completed the lessons in the Quick Start Guide, we recommend that you do so now, since all the following examples will be easier to understand if you have some familiarity with the forms and tables they refer to.

The Application Catalog lists the names of all documents organized by document type.

The Catalog holds other useful information, such as the Primary Table of each document, and when (and by whom) the document was last modified.



Document Type	Document Name	PRIMARY TABLE	MODIFIED	BY
Menus	MAIN MENU		04/20/95	
	Sample Menu 1		02/10/95	
Forms	ACTIVITIES	ACTIVITIES	09/22/99	
	CLUB ACTIVITIES	CLUB ACTIVITIES	04/20/95	
	CLUB ROOMS	CLUB ROOMS	04/20/95	
	CLUBS	CLUBS	04/20/95	
	DEPARTURE ZONES	DEPARTURE ZONES	02/09/95	
	dert	dert	08/24/99	
	dert2	dert	08/24/99	
	DISCOVERIES	CLUBS	09/19/99	
	EMPLOYEES	EMPLOYEES	02/09/95	
	FAMILY MEMBERS	FAMILY MEMBERS	02/09/95	
	fred	fred	09/19/99	
	MEMBERS	MEMBERS	09/18/99	
	PRICES 4.5	PRICES 4.5	02/09/95	
	RESERVATION DETAIL	RESERVATION DETAIL	04/20/95	
	RESERVATIONS	RESERVATIONS	02/22/95	
	Sample Form 1	Sample Form 1	02/09/95	
Sample Form 2	PRICES 4.5	02/09/95		
Sample Form 3	Sample Form 3	02/09/95		
Sample Form 4	CLUBS	04/20/95		
Reports	ACTIVITY SURVEY	ACTIVITIES	04/20/95	
	FAVORITE ACTIVITY	MEMBERS	04/20/95	
	Sample Report 1	MEMBERS	04/20/95	
	Sample Report 2	MEMBERS	04/20/95	
	Sample Report 3	CLUBS	04/20/95	
Sample Report 4	RESERVATION DETAIL	02/10/95		
Procedures	INPUT RESERVATIONS	Configuration	04/20/95	
	MEMBER LIST	MEMBERS	05/15/95	

You can quickly open any document in your application by double-clicking on the document name in the Catalog.

If the Application Catalog is hidden beneath other windows, you can display it by choosing **Window>>Catalog**

Creating Documents

As mentioned earlier, a DataEase application contains four types of documents: *forms*, *reports*, *menus* and *procedures*. After an application is named, you can immediately begin to design a new document of any type, although it's customary to create the application tables and data-entry forms first.

Creating forms for Record Entry

The most important type of document in an application is a *form*. A DataEase form serves the same basic purpose as a paper business form: Both types of forms separate information (data) into categories, so you can collect and store the information in an organized manner.

The figure below shows two forms: a traditional paper form, and an electronic DataEase form.

The figure compares two forms for record entry. On the left is a traditional paper form with blank lines for 'Club Name' and 'Address'. On the right is an electronic DataEase form titled 'CLUBS'. The electronic form has a sidebar with a logo and buttons for 'New', 'Save', 'Delete', 'Close', 'Activities', and 'Reservations'. The main area contains input fields for 'Club Name' (Playa Blanca), 'Telephone' ((52) 333-20440), 'Street' (497 Costa de Chamela), 'City' (Jalisco), and 'Country' (Mexico). It also includes a 'Description' box, a map of Mexico with a red dot for 'Playa Blanca', and a section for 'Activities' with icons for Baseball, Waterski, Biking, Hangliding, Snorkel, and Theater. Arrows point from the text 'The traditional Paper Form..' to the paper form and '...and the rather more exciting DataEase form.' to the electronic form. Another arrow points to the input fields in the electronic form with the label 'Fields'.

Instead of filling in the blanks on a paper form, you type information into areas on the screen called *fields*.

Placing fields on a Form

A field is a blank area on a form layout used to accept and display data during record entry. Each field in a data-entry form corresponds to one cell in the database table that underlies the form.

When you create a form layout you can:

- **Define each field individually.** You can access Field Definition option by choosing the Field option on the Objects menu.
- **Copy Predefined fields on the same form.** When you copy fields within a form, DataEase creates a field with the same characteristics as the original, adding a number to the end of the name to ensure the new field has a unique name.
- **Copy Predefined fields from other forms.** You can access forms in the current application - or in any other DataEase application.
- **Define a form that uses an existing table.** When you define a form that uses a table, DataEase copies all the table's columns (fields) to your layout.

The figure below shows the data fields defined on the MEMBERS Multiform.

The screenshot shows a web-based form titled "MEMBERS" for "Club ParaDEASE". On the left is a sidebar with buttons: "New", "Save", "Delete", "Close", "Clubs", and "Reservations". The main form area has a "Member ID" field with the value "MEME". The top section contains fields for "Last Name" (LAST NAME), "First Name" (FIRST NAME), "Initial" (M), "Street" (STREET), "City" (CITY), "ST" (ST), "Zip Code" (ZIP CODE), "EXPIRAT" (Expiration Date), and "Telephone" (TELEPHONE). Below this are "FAVORITE AC" (Favorite Activity) and "Method of Payment" (PAYMENT METHOD) with a dropdown arrow. The "Card No." field is labeled "CARD NO.". The "Family Members" section is a table with columns "First Name", "Last Name", and "Date of Birth", with the first row containing "FIRST NAME", "LAST NAME", and "DATE OF". The "Membership Fees" section shows "Adult Annual Fee \$35.00", "Child Annual Fee \$15.00", "Adult Fees" (FEES), "Child Fees" (EES), and "Total Due" (L DUE). At the bottom right, there are labels "TextLabel" and "Field" pointing to the "FEES" and "L DUE" fields respectively.

A field is normally identified by a Text Label, so that the operator can see where specific data needs to be entered.

TextLabel Field

Defining Field Characteristics

To define a field, you assign characteristics that control how it appears and what special functions it performs in User View. You can specify that a field:

- Accept only a specified type of data. Data Types include Text, Number, Numeric String, Date and Time.
- Accept only data within a specified range of values. You can define a range using a Validation Formula. For example, in the cost field for a special vacation package, you could exclude values over \$1000.
- Automatically derive data values. You can use a Derivation Formula to instruct DataEase to automatically fill in a field. DataEase can derive a data value using several methods - from data in other fields, a default value you provide, a system value (current Date, say), calculations, group statistics, or a combination of these methods.
- Prevent data being entered in the field. You can assign the Prevent Data Entry characteristic to the field. Derived fields (calculating a price, say) are often defined as Prevent Entry.
- Require that data be entered into the field. You can assign the Required characteristic to a field, if the field is essential. For example, when creating a new Customer, his Name would be essential, and therefore Required.
- Prevent duplicate entries of values. You can assign the Indexed and Unique characteristics to the field. An Index makes it much quicker to access data in the field. Unique means that the same value can NOT be entered twice. For example, an Invoice Number would be unique. Unique values should always be indexed, since all existing records must be checked whenever a new record is created, to ensure uniqueness.
- Index the data values for faster access. You can assign the Indexed characteristic to a field.

Displaying forms for Record Entry

The completed DataEase form is displayed in User View for entering and editing data. Users enter values in the fields and save the completed form. Each form contains one record. Each record corresponds to one row on the database table in which the data is stored. The figure below shows the first record in the MEMBERS form.

The screenshot shows a DataEase application window titled "MEMBERS". The interface includes a menu bar (File, Edit, View, Goto, Query, Application, Window, Help) and a toolbar with various icons. On the left, there is a sidebar with the "Club ParaDEASE" logo and the tagline "The Antidote to Documentation". Below the logo, the "Member ID" is displayed as "00001". A vertical menu on the left contains buttons for "New", "Save", "Delete", "Close", "Clubs", and "Reservations". The main form area is titled "MEMBERS" and has "Previous" and "Next" buttons. The form contains several input fields for member information: Last Name (Birnbaum), First Name (Roger), Initial (I), Street (87 Grant Street), City (West Roxbury), State (MA), Zip Code (02132-0000), Expiration Date (11/26/94), Telephone ((617)832-8843), Favorite Activity (WATERSKI), and Method of Payment (AMERICAN EXPRESS). Below these fields, there is a "Family Members" section with a table listing family members and their birth dates. To the right of the family members table is a "Membership Fees" section showing the costs for adult and child annual fees, and the total due.

First Name	Last Name	Date of Birth
Roger	Birnbaum	06/20/55
Timothy	Birnbaum	04/19/91
Debra	Birnbaum	02/14/85

Membership Fees	
Adult Annual Fee	\$35.00
Child Annual Fee	\$15.00
Adult Fees:	35
Child Fees:	30
Total Due:	65.00

This record stores Roger Birnbaum's address, phone number, membership expiration date, and favorite activity.

Subsequent records store the same information for each Member.

Defining Relationships

DataEase lets you easily define relationships that link the data tables in an application. When a relationship joins two tables, you can:

- Access the data stored in one table by opening a form in User View based on the other table.
- Join the data from both tables in a Multiform in Designer View.
- Use Relationships to create report documents that group, select, sort, display and summarize the data drawn from many tables.

You must fill in the Relationships form once for each pair of tables you want to link in a relationship.

Relationships

CHOOSE THE TABLES TO RELATE...

Records in **MEMBERS** are related to records in **FAMILY MEMBERS**

based on the following fields being equal: (define at least one set of fields)

MEMBER ID	=	MEMBER ID
	=	
	=	

OPTIONS..

Unique Relationship Names - records in each Table can be referenced as:

--	--

(Note: if these tables are used in another relationship, Unique Names are required.)

Referential Integrity - the effect a change to Main Form key field has on SubForm key

Restrict (Don't Update)	Cascade (Update)
-------------------------	------------------

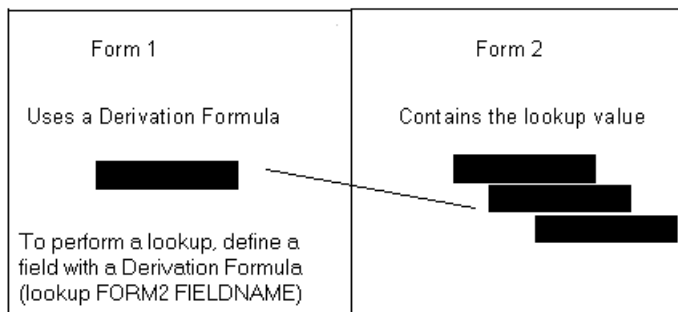
(use Toolbar for other record actions)

Save Done

Using "Lookup" to enter data Automatically

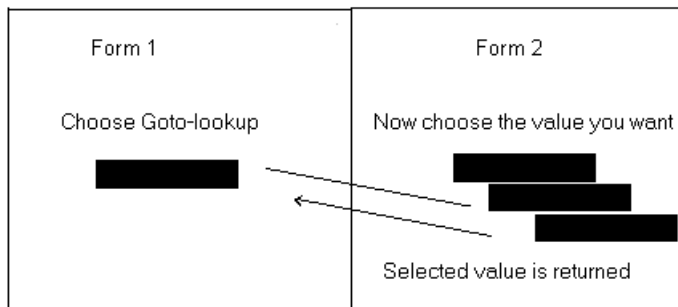
You can tell DataEase to automatically look up a value from a related table and enter the value into a field during record entry. Use a Derivation Formula with a lookup operator to define the field in Designer View. Specify the name of the related table and field from which to retrieve the value.

The figure below shows the automatic lookup in action.



Lookup using the Goto Menu in User View

In User View, you can retrieve a value from a related table. Place your cursor in the Match Field for the relationship, choose **Goto>>Lookup**, and choose the desired table from the list related tables displayed by DataEase. Now choose the data value you want. DataEase automatically enters this selected value in the active form (the one you came from).



You can only use fields that define a relationship (Match fields) for a lookup.

Note: To narrow the list of related records displayed by DataEase, enter a partial value and one of the DataEase wildcard characters into the Match field before performing the lookup. For example, entering Can* would narrow down the selection to values starting with Can.

Displaying a Related Form

During record entry you can use **Goto>>Related Form** to display and use a form related to your active form. The original form remains open, and you can return to it by simply pressing the "return to" icon, shown below.



While in the related form you can enter or modify records, just as if you had opened the form using **File>>Open**.

Viewing Related Records on a Multiform

A Multiform is a form that is composed of two or more related forms. To create a Multiform, you define each form separately, define relationships between the associated tables, and then specify the Subforms by placing them on the Main form.

When you view a Multiform in User View, DataEase displays only the Subform records that are related to the current Main form record.

Creating a Report to retrieve Data

The second type of Data document is a *report*. A report lets you quickly retrieve the exact data you need from your database. In contrast to a standard paper filing system, which typically stores information in alphabetical order only, a DataEase report lets you find and list information from your database in a variety of ways - by time, date, location - any selection criteria at all.

You can create a report simply by using Query By Model (QBM), which lets you retrieve data from several tables in one report. QBM also lets you create a reusable query, using DataEase Query Language (DQL) keywords and symbols to select, order, and generate statistical information on the data.

Parts of a Report

A report has two parts: a *query* and a *layout*.

A *query* is a question that can be answered by the information stored in the database - something along the lines of "get me all the records for customers called Smith".

A *layout* is the format that displays the data on your screen - the visual appearance of the data.

Query By Model

The Query By Model dialog displays a model (a table diagram) of the data connection used by the current document. You can use QBM to:

- Select fields to display in a report.
- Select fields to use as selection and sort criteria.
- View a diagram of the tables and relationships used by the document.
- Create *calculated* and *summary* fields.
- Create fields that display data from related fields.

The figure below shows the Query By Model dialog box displaying the RESERVATIONS Multiform.

Here is the RESERVATION Form as a user sees it. RESERVATIONS is a Multiform, with a Subform RESERVATION DETAIL here.

..and here is the QBM dialog box, displaying the relationship between these two forms. Note that field names are displayed in columns.

QBM also lets you *group* and *sort* records and obtain group statistics by assigning sorting and statistical operators to the columns displayed in the Query By Model dialog. For example you can *group* the Club ParaDEASE members by favorite activity, *sort* them by state, and *count* the number who prefer each activity Club ParaDEASE currently offers.

Creating Report Layouts

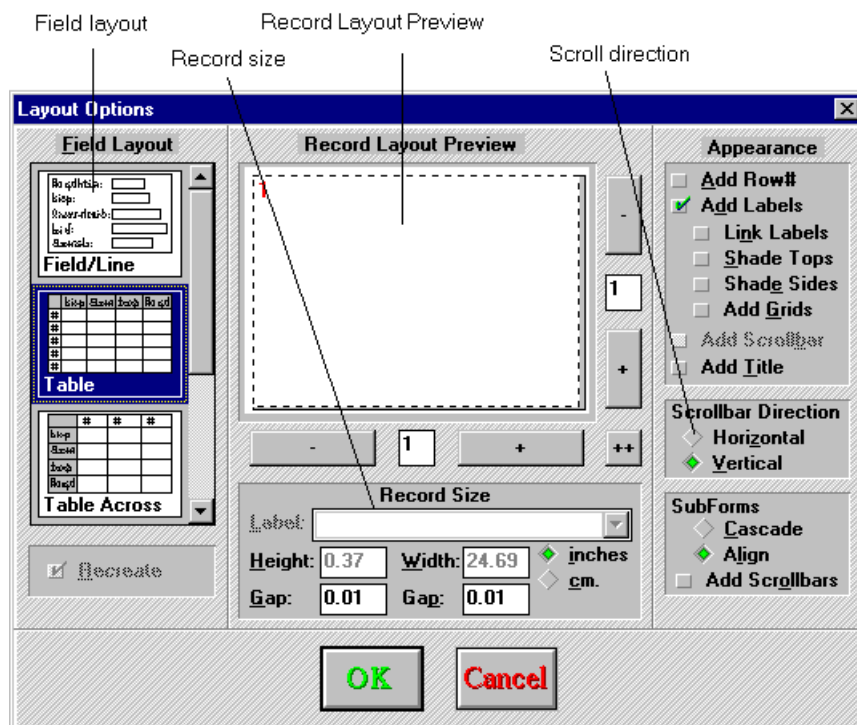
There are two ways of creating a report layout in DataEase.

- Use QBM to generate a layout automatically.
- Use the Layout Options dialog.

You can also use QBM to create a report with a custom layout that includes fields from several related tables, plus various extras, such as shapes, graphic images, and buttons, designed to enhance both appearance and functionality. For example, you can add a button which opens a form from within the report itself.

The report layout has two main components - the Page Header and Main Body. In the Page Header you would place data that you'd like to appear on every page of the report - the Report name and date, say.

The Layout Options dialog box lets you choose a predefined layout into which you would specify the arrangement of fields in both the Main form and any sub forms. In addition, this dialog lets you choose the number of records the form displays - both horizontally and vertically - and other display options, such as Row Numbers, scroll bars, and field labels.



DataEase lets you choose how to arrange fields in a document. The six predefined layout options are: Original Form, Field/Line, Table, Table Across, Mailing Labels, and Movie Credits. You can also create a custom layout, if none of the predefined layouts suit you.

Printing a Report

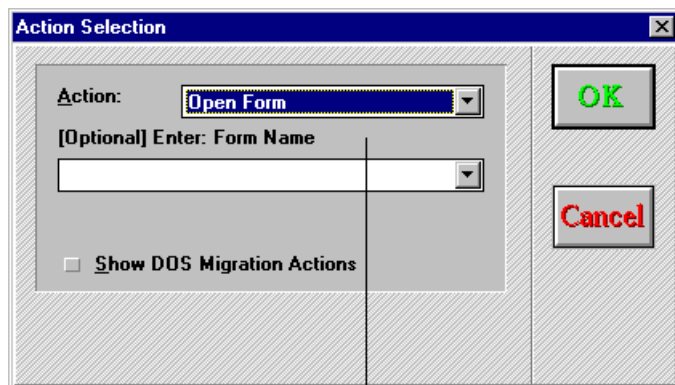
When you open a report in User View, DataEase responds to the query by generating *report output*. Use **Document>>Print Options** to send this output to a window, a disk file, or to your screen

The printed report and the report you view on screen will not necessarily appear identical. For example, information held in the Page Header will appear on every printed page - but **not** when the report is output to screen.

Designing Custom Menus

DataEase also lets you design custom menus that use buttons and/or images with associated actions to control how an application looks and acts in User View. A custom Menu is a document that has no connection to a data table. It can contain most objects from the Objects Menu or Palette, with the exception of Subforms and fields.

The figures below shows the DataEase dialog used to assign actions to menu choices, followed by a sample menu.



When you create a Button or Picture Object, you can assign an Action - such as "Open Form" - to the object.

Here is the Club ParaDEASE Main Menu, which has six Buttons.



When you open a Menu Object in User View, DataEase automatically disables the **Edit**, **Goto** and **Query** menus on the DataEase Menu Bar. This modification is a security measure, preventing users from accessing data from the built in menus.

By creating a Custom Menu and then assigning it as a startup document in each user's User Form, you can control exactly what each user is allowed to do. You can even assign different startup menus to different groups of users, and link menu documents together, thus guiding users through a series of options tailored precisely for them.

Creating a DQL Procedure

The fourth type of DataEase document is a Procedure. A Procedure lets you use DataEase Query Language (DQL) keywords and symbols for a number of purposes, such as:

- To select, order and generate information from your database.
- To manipulate the data, by entering, modifying or deleting records.
- To run a series of Procedures, each of which can be triggered by different logic.

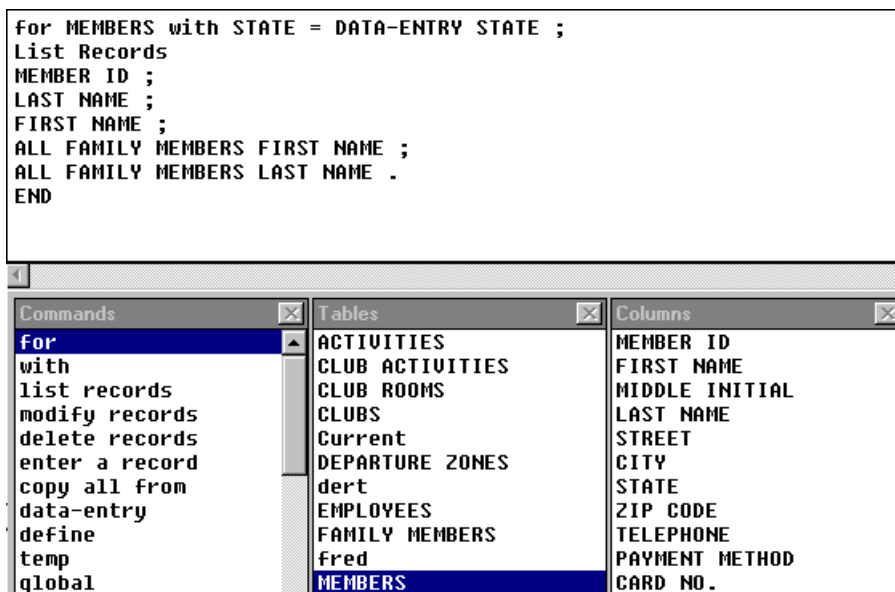
DQL procedures can be saved, and used time and time again.

The DQL Procedure consists of a *script* and a *layout*. The script is a set of DQL instructions that DataEase executes when you open a procedure document. The script can ask a question about the data in one or more tables, list or manipulate the data, or chain together any number of separate data management options.

A Data-entry form is a form that (optionally) appears at the start of a DQL Procedure. A Data-entry form allows you to specify selection criteria and other information used by the procedure, before processing begins.

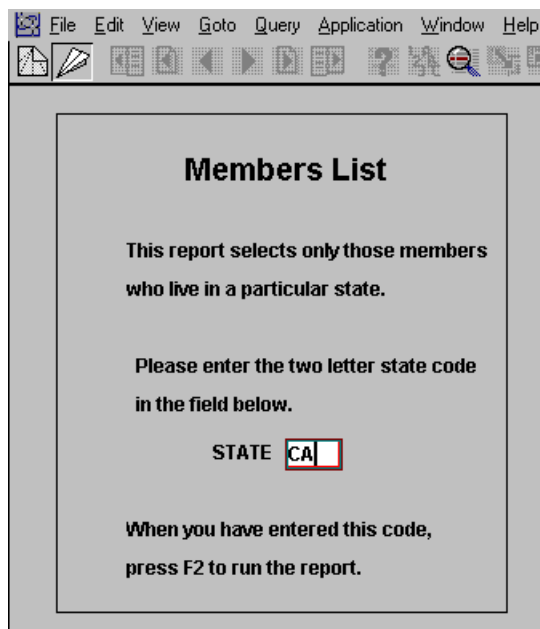
Data-entry forms exist for reasons of backwards-compatibility with old DOS versions of DataEase, and do not represent good design in Windows DataEase. Processing procedures should use the **Input Using** command rather than Data-entry forms, while Listing Procedures are better replaced with QBM reports.

The figure below shows a script created using the DQL script editor in Designer View. This script contains a set of instructions that tells DataEase to list the MEMBER records for a particular state. The required state is selected by the user - using a Data-entry, referred to on the first line of the script.



When you define a script that generates output, you can use the Layout Options dialog, or create a custom layout, to format the way the output appears when it is either printed or displayed to screen.

The figure below shows the Data-entry form for the DQL procedure shown on the previous page.



The screenshot shows a window titled 'Members List' with a menu bar (File, Edit, View, Goto, Query, Application, Window, Help) and a toolbar. The main content area contains the following text:

Members List

This report selects only those members who live in a particular state.

Please enter the two letter state code in the field below.

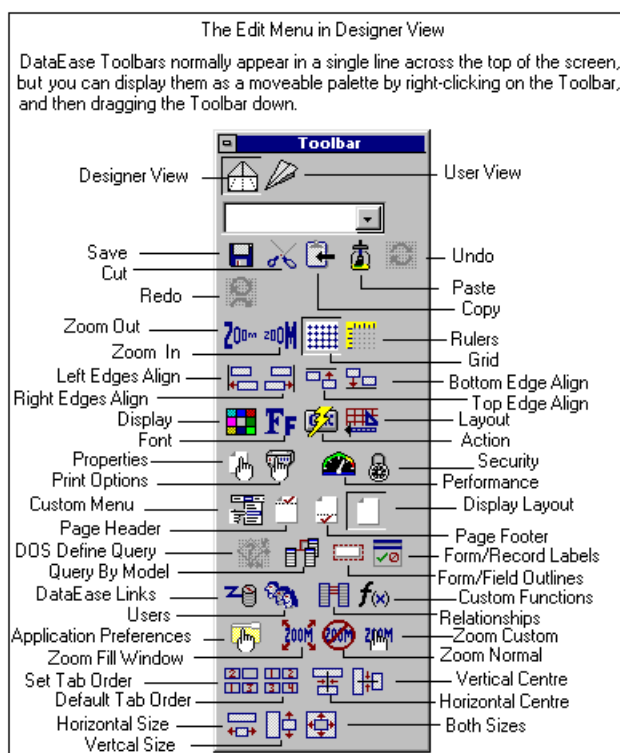
STATE

When you have entered this code, press F2 to run the report.

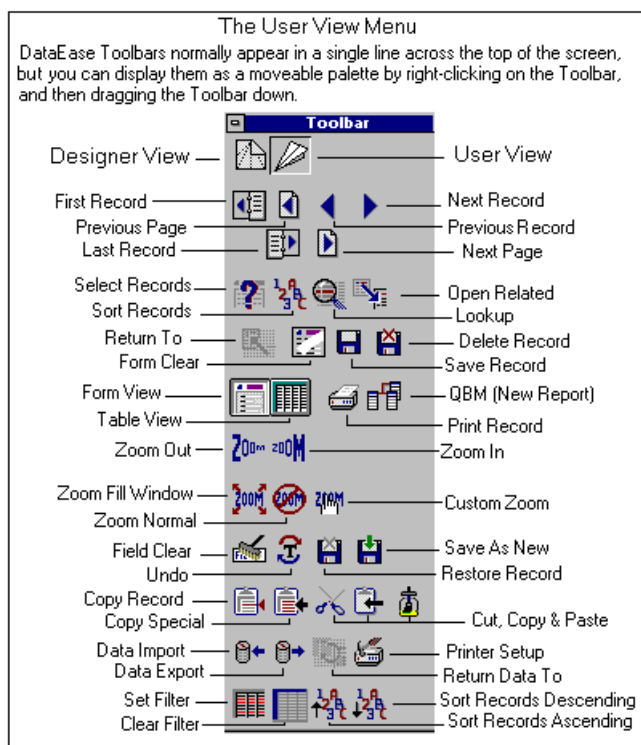
DataEase Toolbars : Designer View

A toolbar is the row of buttons displayed directly under the Menu bar. The toolbar provides instant access to frequently used menu options.

DataEase provides two document toolbars: One that is available in User View, and the other in Designer View. Simply click on the button to execute it.

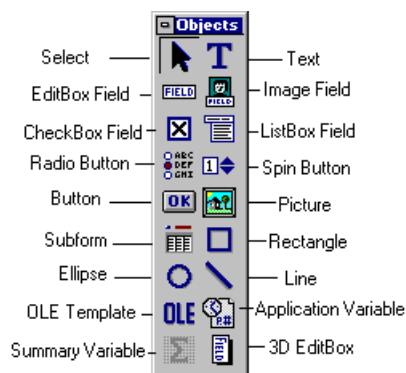


DataEase Toolbars: User View



Object Palette

You can use the Object Palette, shown below, to select document components at the click of a button.



The **Object Palette** icons are explained in the Help file.

The Object Palette provides a variety of Field Types and Objects to make your Windows documents attractive and easy to use.

- **Images**, such as a Picture from a graphics file.
- **Shapes**, such as lines, boxes, circles and ellipses.
- **Buttons**, such as the OK Button that appears in most Windows dialog boxes. A Button invokes an action, which you decide when you create the button.
- **OLE Objects** from other Windows applications. You can use OLE (Object Linking and Embedding) to insert an object from a document in another Windows application into a DataEase document. Some examples of OLE are blocks of text, tables or charts, spreadsheets or graphics.

Database Styles

The concept of *styles*, originally popularized in Desktop Publishing, is used in DataEase. DataEase allows you to create style conventions on two levels: *Object Styles*, and *Style Sheets*.

Object Style is a named set of display attributes that can be assigned to an object - for example the pattern or color of a field, or the shape and size of a border.

Instead of individually adjusting the display attributes for each document, you can create a Style Sheet. A Style Sheet consists of a set of Object Styles.

For example, you might decide to give all the buttons in an application a default Object Style of: Font Name=Arial, Style=Bold, Size=12 Point, Effects=Underline, Color=Red.

Similarly you might assign default styles to various other objects, such as Text, EditBox Fields, CheckBox fields, and so on. All these Object Styles can then be stored in a Style Sheet - call it Style Sheet 1.

You can have as many Style Sheets as you like, and when building your application you can use as many as you like.

If you subsequently decide that your buttons look terrible in Red - simply redefine the Button Object in the relevant Style Sheet. All the Buttons in your application that use this Style Sheet will automatically be updated.

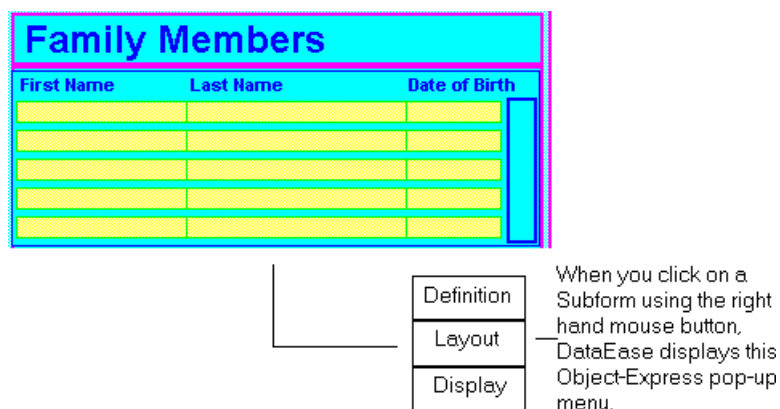
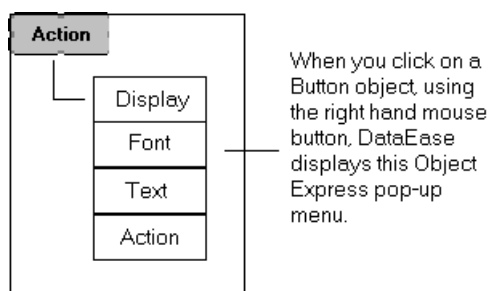
Style Sheets are an important part of application design in DataEase. By using them, you will save a lot of time. More importantly you will ensure that your applications are consistent, and thus easier for users to understand.

Object Express Menus

In addition to the pull-down menus and the Toolbar at the top of the screen in Designer View, DataEase supports the use of the right hand mouse button to access a set of special object-oriented Express pop-up menus that provide a quick way to define or modify the key attributes of a form, record, field, or any other type of object.

To access the Object Express menu for an object, just select the object and then click the right hand mouse button to display the pop-up menu. The options that appear on the Object Express menu are named after the six most commonly used Object Definition dialogs, namely: *Display*, *Font*, *Text*, *Action*, *Layout*, and *Definition*.

As shown in the figures below, the objects on the Object Express menu vary depending on the type of object selected. Only the menu options that are appropriate to the selected object are displayed on the object's pop-up menu.



The figures above are just two examples. Each object has a popup Express menu suited to its nature.

Starting DataEase

When you double-click on the DataEase icon on your Windows desktop, DataEase displays the DataEase desktop. Choose the **File** menu. DataEase displays the menu options shown below.

File
New Application
Open Application
Delete Application
Migrate Application
Rename Application
Run Data Model Manager
Exit

File Menu Options

- **New Application** displays the New Application dialog.

Double click on the subdirectory where you want to store your new application, then type the name of the application in the Application Name text box. Click OK, and the application Security dialog opens. Enter your *User Name* and *Password*. When you click OK, DataEase displays the new application's desktop and a catalog where the application's contents are displayed.

- **Open Application** displays the Open Application dialog.

Double-click on the application subdirectory where the application is stored, and then double-click the application name in the Application Name text box. The Security dialog opens. Enter your User name and Password, then click OK. DataEase then opens the selected application, displaying the desktop and catalog.

- **Delete Application** displays the Delete Application dialog.

Double-click on the application subdirectory where the application is stored, and then double-click the application name in the Application Name text box. When the Security dialog opens, type in your User name and Password. You **MUST** have a High Security Level to delete an application.

- **Migrate Application** displays the Migrate Application Dialog.

- **Rename Application** displays the Rename Application dialog.

Double-click on the application subdirectory where the application is stored, and then double-click the application name in the Application Name text box. When the Security dialog opens, type in your User name and Password. When you click OK, DataEase displays the Enter New Application Name dialog. Type in the new name in the Application Name text box. You **MUST** have a High Security Level to rename an application.

- **Run Data Model Manager** opens the Data Model Manager (If you have installed it).

Data Model Manager lets you quickly create new applications using point-and-click diagramming tools. DMM also lets you analyze existing applications for consistent relationships, and generates entity diagrams and printed reports. (DMM is a 16 bit product, not shipped with DataEase 6 or higher).

Desktop Toolbar

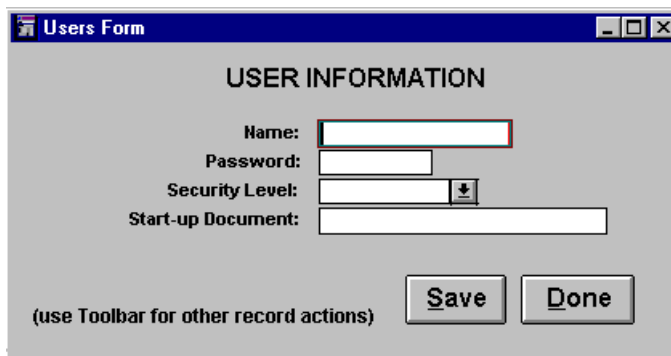
When you open your application, DataEase displays the Desktop Toolbar. This toolbar lets you quickly access specific document and application management options.



Controlling Access to Applications

DataEase security features let you control access to confidential information and specify which users can modify documents and data.

DataEase uses a special system form called the **Users Form** to store the security levels you assign to application users.

The image shows a screenshot of a Windows-style dialog box titled "Users Form". The dialog has a blue title bar with standard minimize, maximize, and close buttons. The main area is light gray and contains the heading "USER INFORMATION" in bold. Below the heading are four labels with corresponding input fields: "Name:" followed by a text box, "Password:" followed by a text box, "Security Level:" followed by a dropdown menu with a downward arrow, and "Start-up Document:" followed by a text box. At the bottom left, there is a note "(use Toolbar for other record actions)". At the bottom right, there are two buttons labeled "Save" and "Done".

The Users form lets you assign a User Name, Password, and Security Level to each person who uses the application. When a user signs on, DataEase checks the user's security level and subsequently enforces it whenever the user tries to view, modify, or delete either a document, or the data held in that document.

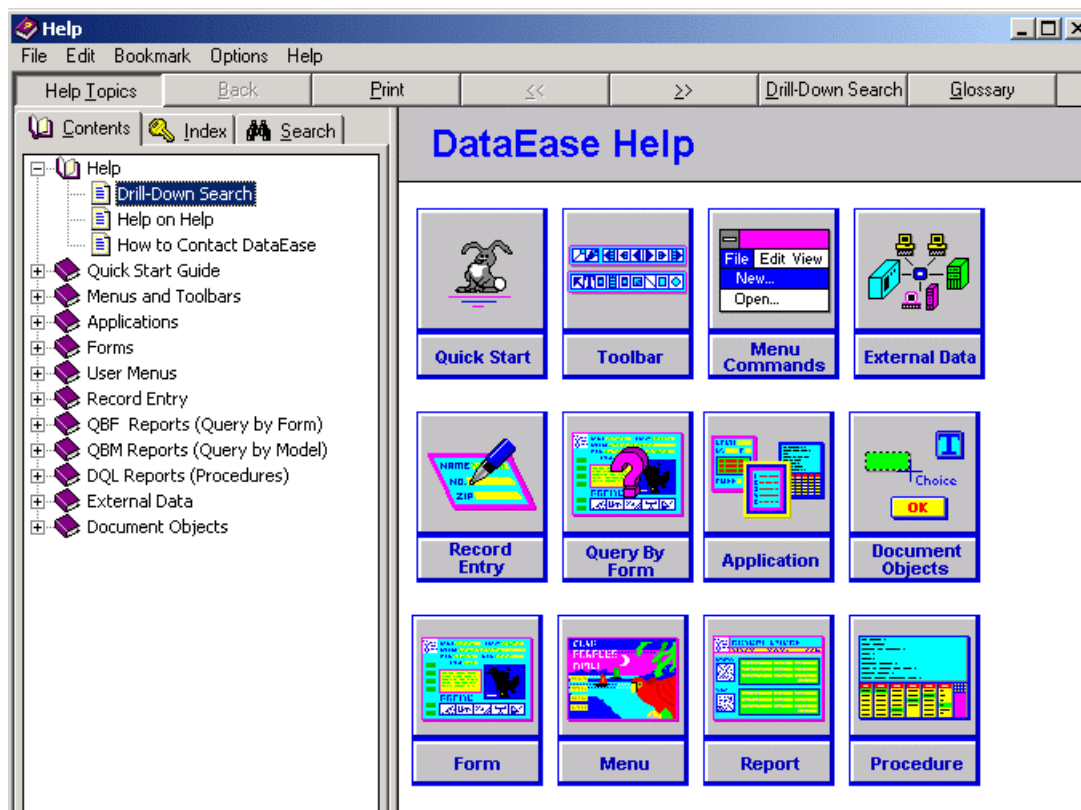
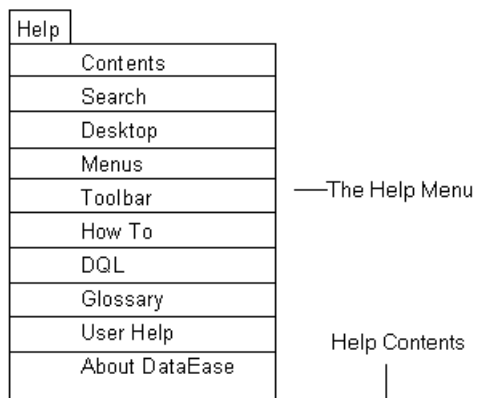
You can override default security settings by specifying custom settings for individual documents using **Documents>>Security**. Further, each individual field within a document can be assigned its own security settings. Thus security may be defined at **Application**, **Document**, and **Field** level.

If your application accesses an SQL database, use the security features provided by the SQL engine.

Providing Help for Application Users

The Help menu, located at the upper right of the DataEase screen, lets users access information on DataEase features.

The Help system contains an index, searching and browsing features, definitions of terms, and interactive text that lets you jump between related topics (like this online manual). The Help menu and the Help window are shown below.



Context-sensitive Help can be displayed for any DataEase menu option, dialog, or Toolbar button, by pressing **Shift-F1**. DataEase also lets you include a Help message for each field on a record entry form. During form design, you can define a Help message for any field that requires an explanation. In User View, when the cursor enters the field, DataEase automatically displays the Help message in the status bar (bottom of the DataEase screen).

Chapter 2 : Creating and Normalizing Database Tables

This section explains how to design the underlying database tables to make efficient use of storage space and maximize an application's integrity and overall performance.

What is Normalization?

A database is a collection of related tables that store data used to provide business information. For example, the sample Club ParaDEASE application contains data that can be used to answer questions, such as - which clubs offer snorkeling? How many memberships come up for renewal next month?

Normalization is the process of analyzing the columns in database tables and organizing them to minimize data storage requirements, maintain data integrity, and optimize data access and retrieval performance.

Analyzing the data in an Application

The data displayed in a DataEase record entry form may be stored in one or more database tables. The tables can be stored in a Native DataEase format, a foreign database, or in several different databases. When you view the table in User View, the format looks the same, regardless of how many tables and databases the data is stored in.

When you design an application, you need to answer three basic questions.

1) How is the data organized?

The DataEase forms you use to enter and view data are not necessarily in a tabular format. However, you can display these forms as tables that access data from one or more underlying database tables. Tables are composed of *columns*, which contain data from each of the record's data fields, and *rows*, which represent the individual records.

2) Where does the data come from?

When you design a DataEase form and table, you are creating the structure for the data. The actual data comes from:

- Typing data into blank forms on your screen.
- Retrieving data from related tables.
- Deriving values with mathematical calculations.
- Retrieving system-generated values, such as the current *date* or *time*.
- Importing data from another Windows application via an OLE link.
- Importing data from other files, via the *Import* command.

3) Is the data dynamic or static?

Data can be categorized as static or dynamic.


- Static Data changes relatively infrequently and usually serves as an online reference. In the Club ParaDEASE application, the CLUBS table - which stores basic information about clubs, such as the name and address - is a good example of a static table.
- Dynamic data is frequently queried and updated as day-to-day business transactions occur. The RESERVATIONS table, which stores all the vacation reservation data for Club ParaDEASE, is a dynamic table. Information held here changes all the time.

The state of the data is important to consider as you perform various application design operations, such as normalizing tables and indexing columns.

The comparative frequency of entering, modifying, and querying the data is an important design consideration. Indexing numerous columns generally speeds up query operations, but can slow down data-entry operations (accessing the index is easy, but creating it takes time).

Database Tables

A database table is a rectangular grid of data on one topic. The table consists of a specific number of columns and number of rows, as shown in the figure below.



Row#	MEMBER ID	FIRST NAME	MIDDLE	LAST NAME	STREET
1	00001	Roger	I	Birnbaum	87 Grant Street
2	00002	George	R	Perrault	38 Whitney Avenue
3	00003	Laura	M	Christino	4905 Radford Avenue
4	00004	Laura	R	Williams	17 Corinthian Way
5	00005	Cynthia	T	Riggs	11 Lilac Drive
6	00006	Patrick	M	Shannon	3 Pleasant Street
7	00007	David	S	Johannsson	1709 Division Street
8	00008	Fred	M	LaCoste	487 Lenox Road

The intersection of a row and column is called a *cell*. Each cell holds a data value.

Each column holds one category of information in the database, such as the MEMBER ID, or the LAST NAME, as shown in the example above. Each category is called an *attribute*.

Each row holds one set of data, which is called a record. Each row must be uniquely identifiable. In the above example, each row holds the record for one member, and each record/row is uniquely identifiable by the MEMBER ID. Even if two members have exactly the same FIRST NAME and LAST NAME, their records could still be distinguished by their MEMBER ID.

Each column in the table stores one type of information about a particular *entity* (an entity is a particular thing - such as a person, or a place) and each row stores information about a different *instance* of the table entity (e.g. a particular member, club, or reservation).

Choosing Unique Keys

When you create a form and table, one column should contain a data type that ensure the uniqueness of each row in the table. For example, in the Club ParaDEASE MEMBERS form each member possesses a unique MEMBER ID number. This number ensures that even if two members have exactly the same name and address (father and son, say), they are never the less identifiable as unique individuals

The column that uniquely identifies each record in a table is called the *Primary Key*.

Because DataEase is a relational database, two (or more) separate tables can be linked together to share information as long as at least one column in the first table matches one column in the second table.

In DataEase a primary key column is called a *match* field, on which a relationship is based. The primary key column in one table is replicated as a *foreign* key in a second related table. The foreign key is the match field in the related table. The foreign key usually does not serve as a primary key in its own table.

A simple example: Imagine a CUSTOMER Form and an INVOICE form. The primary key of the Customer form is a CUSTOMER ID. The primary key of the INVOICE form is an INVOICE NUMBER. The match field which relates these two forms is the CUSTOMER ID - both forms need this, so that invoices can be sent to the right customer. In this example, CUSTOMER ID is the *primary* key in CUSTOMER, and the *foreign* key in INVOICES.

Good database design makes it inadvisable to duplicate the same data in different tables. However, primary/foreign key pairs HAVE to be duplicated in order to work, so when you create a unique key, choose a value that requires little storage space and does not need to be updated frequently - such as Social Security Number, or the arbitrary MEMBER ID number.

Creating Composite Keys

If you can't find a column that uniquely identifies each record in a table, you can create an artificial identifier - like MEMBER ID in the MEMBER table - or alternatively you can create a *composite* key. A composite key consists of two or more columns which, when used together, ensure that each row is unique. When a composite key is used as a match field, the same columns must be duplicated in related tables to form the foreign key.

For example, in the FAMILY MEMBERS table, the unique key is a composite key that is composed of both the MEMBER ID and the FAMILY MEMBER ID.

Defining Field Characteristics

When you create a form and table, each column in the table (which corresponds to a field in the form) must be assigned various characteristics such as Data Type, Length, and in some cases, Format. These characteristics govern the type of data that can be entered into the column/field.

Field characteristics are explained in depth in the section **Creating a Field Object** in the Objects Menu chapter. We recommend that you read that section before defining fields in your tables.

Each field can contain only one data type. Three common data types are Text, Number, and Numeric String. A text field can contain letters, numbers, or a combination of both - such as an address field. A number field holds a numeric value - such as a COST field. These numbers can be used in calculations. A Numeric String field stores data that is used only for identification and not for calculations, such as a ZIP Code.

You must also specify the length of a data field, i.e. the maximum number of characters or digits. The 5-digit MEMBER ID column would store a range of numbers from 00001 to 99999. Be sure you've specified enough digits (or letter spaces) to accommodate any data you may want to store in the future. Failing to allow enough digits results in a lot of inconvenience later on - as victims of telephone number reorganizations will testify.

Depending on the Data Type, you may be given further options. For example, after you've specified the length of a Numeric String, you can also specify its format - such as "three numerals followed by a dash, and then four more numerals".

It is important to plan column definitions carefully. Consider possible exceptions and be sure your specifications eliminate these exceptions.

Determining Field Data Options

You must also specify the Field Data options that apply to each data field.

- **Required.** Before saving a record, the user must enter data in a Required field. This option **MUST** be chosen for *Unique* fields.
- **Virtual.** A Virtual field value is automatically calculated from a formula or derived from a lookup each time the record is displayed or printed. The value is not physically stored in the associated data table - hence the term 'virtual'.
- **Prevent Entry.** This option prevents a user from changing a value that's generated by the system or a DQL procedure. Generally you should choose this option for any field derived from a derivation formula. However, occasionally you may use a derivation formula that allows data entry.
- **Indexed.** It is sensible to index Match fields (primary or foreign keys) or fields that you will frequently search or sort on. Index as few fields as possible - each indexed field will add to the time it takes to enter or modify records. You can always redefine a field as indexed later on in the application's life, if you find that it needs the extra access speed.
- **Unique.** Choose this option for your primary key. It's important to limit the number of unique fields. DataEase looks at the combination of unique fields to determine the uniqueness of a record. **Make sure you understand this!** If you place two unique fields on a form, then **NEITHER** field is unique on it's own. Only the combination of the two fields is unique.

Designing a Database

You should design your database on paper before you turn on your computer and start DataEase. The preliminary steps that follow are important to ensure that you create an efficient database design.

Determining the Data Users need

The best way to begin the application design process is to interview the people who will actually use it. Find out what types of information they need and what questions are frequently asked by the customers, staff, management, and other potential users. Also, analyze the forms and reports that are already being used in the organization.

Listing the Information you want to Track

As you interview users and analyze existing forms and reports, make a list of all the information you want to track.

Following is the list we created during the initial design stage for the Club ParaDEASE application. This list contains the entities and attributes that are used in the application.

club names	reservation information
club locations	reservation party members
sports activities	date of departure
members' names	point of departure
members' home address	price list
credit card numbers	air fare
expiration date	one week vacation price
members' ages	seasonal discounts
members' children	children's price
members' favorite activity	list of guests

As you look at this list, you can see how these disparate items fall naturally into groups - information on MEMBERS, information on PRICES, information on BOOKINGS.

In a database, a table is created for each entity that you want to track. Each item of information about the entity, or attribute, will become one *column* in the table.

When you feel your list is complete, decide which items are entities that require their own tables. Several of the Club ParaDEASE entities are CLUBS, MEMBERS, and RESERVATIONS. Then list beneath these entities the attributes or characteristics of each that you want to track.

For example, a member can be regarded as an *entity*, and his *attributes* are a name, address, telephone number, hobbies, and so on.

Normalizing Database Tables

When you've reorganized your list so that all the attributes are listed under the appropriate entities, you must decide whether all the attributes under one entity should be stored in one database table, or if some of the information should be subdivided into additional tables.

Knowing how to divide data into tables that reduce storage requirements and speed up retrieval is the key to efficient database design.

The basic principle underlying database design is that you should only have to enter the *minimum* data necessary to produce the information you need. In practice, efficient database design requires you to define relationships that let you access data from separate tables and eliminate data that is stored unnecessarily in more than one table.

To eliminate redundant data and normalize your data tables, you need to follow five basic normalization rules.

- Move repeating columns into a separate table
- Remove a column if its value does not depend on the table's entire unique key.
- Remove a column if its data can be derived from a calculation or another source.
- Avoid blank values.
- Avoid redundant values.

Each of these rules is explained in detail in the following sections.

Remove Repeating Columns

The first rule of normalization is to remove repeating columns and place them in a separate table. For example, in Club ParaDEASE family members are multiple instances of the same attribute, LAST NAME.

MEMBERS			
MEMBERS ID	LAST NAME	FIRST NAME 1	FIRST NAME 2
00010	Cohen	James	Susan
00011	Jones	Anita	
00012	Himes	Sarah	Julian

With just two FIRST NAMES the table already looks clumsy. Imagine it with ten FIRST NAMES.

Wasted space

Notice that if you were to try to enter the family member data directly in the MEMBERS table (see below), this approach would pose a significant design problem. How many columns should you allocate to enter the first names of different family members? 3, 5 10? If you choose a small number, then sooner or later you'll meet a case where the family is too large to enter into the table. But if you select a large number, then you're wasting a lot of space as far as the majority of families is concerned.

A better way to structure family members is to move the data into a separate FAMILY MEMBERS table and link this table to the MEMBERS table using the MEMBER ID column as the Match field for the relationship.

MEMBERS				
MEMBER ID	FIRST NAME	LAST NAME	STREET	CITY
00210	Samuel	Cohen	Tulip Lane	Boston
00211	Vincent	Morelli	16 Chestnut St.	Huston

FAMILY MEMBERS				
MEMBER ID	FIRST NAME	LAST NAME	DATE OF BIRTH	AGE STATUS
00210	Rebecca	Cohen	12/10/39	Adult
00211	Daniel	Morelli	04/03/59	Adult
00211	Katherine	Morelli	10/01/90	Child
00211	John	Morelli	05/09/92	Child

The 'repeating' columns are eliminated. There is no wasted space, and a family of any size can be accommodated with ease.

Removing Columns Not Dependant on the Primary Key

The third rule of normalization is to remove any column that is derived from data other than the value in the table's primary key.

If the value in a column can be derived from the data in the same or a related table, it is usually best to define this column as a *virtual* (non-stored) field and use a derivation formula to calculate its value automatically. Using a virtual field will decrease the number of columns in the table and will thus save disk space.

For example, the CHILD PRICE field on the PRICES form can easily be derived by multiplying the ADULT price by 40 percent. Instead of creating a data column and storing the value in each record in the PRICES table, DataEase automatically calculates the CHILD PRICE whenever you view a PRICES record.

The figure below shows the derivation formula that calculates the CHILD PRICE on the PRICES form without actually storing the data.

The screenshot shows the 'Field Definition' dialog box with the following details:

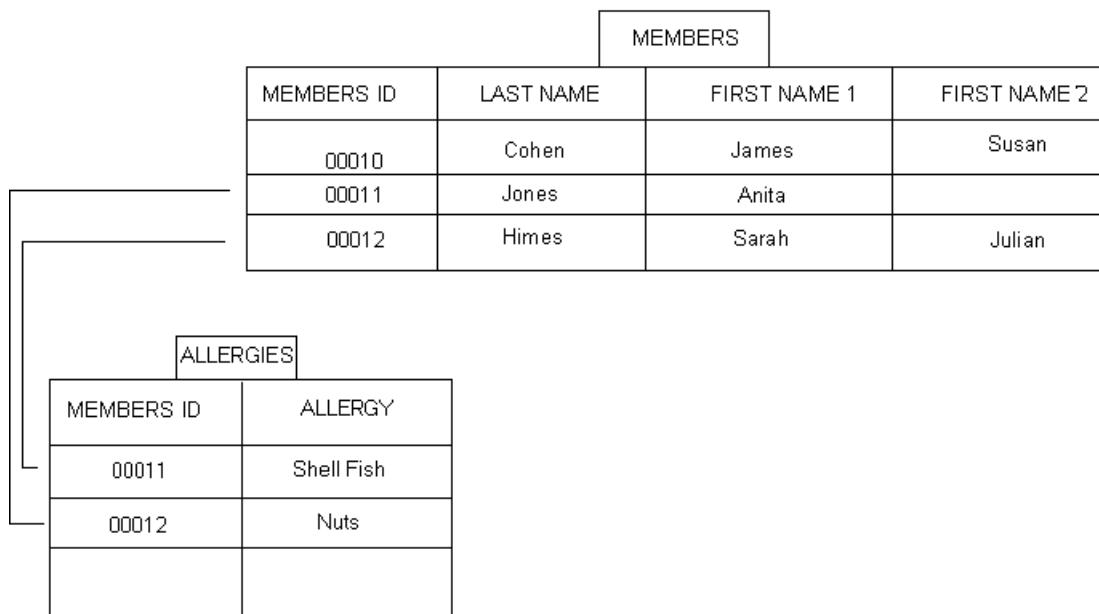
- Field Name:** CHILD PRICE
- Summarize:** ☐
- Tabs:** Type, Derivation (selected), Validation Formula, Help
- Functions:** abs, acos, ampm, asin, atan, atan2, ceil
- Relationships:** <This Table>, <New Relationship>, Current, CLUBS, RESERVATIONS
- Columns:** CLUB ID, CLUB NAME, PRICE, DEPARTURE ZONE, SEASON, CHILD PRICE
- Operators:** /, *, 7, 8, 9, 4, 5, 6, 1, 2, 3, 0, ., -, +, {, }
- Formula:** PRICE * 0.4
- Buttons:** OK, Cancel, Display..., Fonts...

Avoiding Blank Values

Blank values - often called *null* values - are empty spaces in a table that waste storage space. Since blank values are ambiguous (the value might be unknown, not applicable, or simply not entered yet) using them may result in inconsistent report statistics, such as group-level totals and report grand totals.

For this reason you should try to avoid creating columns that may remain blank for many records in a table. If you encounter this sort of situation, move the (largely) vacant columns into a separate table.

For example, if only 15 percent of the club's members have reported food allergies, it would be better to create a new table - ALLERGIES - than to add a new ALLERGY column to the MEMBERS table.



Avoiding Redundant Values

Redundant values are values that are replicated in various tables in the same database. If your database contains redundant columns, such as storing a member's address in both the MEMBERS and the RESERVATIONS tables, this redundancy wastes storage space. Much more importantly, it threatens data integrity. When a customer changes his address, your users might remember to update the change in MEMBERS - but forget about existing RESERVATIONS. If you avoid redundancy, and store the address in just a single location, then when that one location is updated, it's updated throughout the database.

To avoid redundant values, design your database so that each table stores data about a separate entity, and place each data column in only one table.

Replicating Columns in Exceptional Cases

There are a few exceptions to the rule about avoiding redundant values in your database. A column may be replicated when:

- It is used as the Match field to link two related tables (obviously).
- It will be needed to provide a historical record of transactions. For example, if Club ParaDEASE provides its members with a money back guarantee, then the TOTAL PRICE PAID for a vacation should be saved to refer to when necessary. (It wouldn't be safe to 'look up' the price, since prices might have changed while the claim was being examined.
- It makes other values in the table easier to understand. There are no hard and fast rules on this, it depends on circumstances. But in any case, these should be kept to a minimum.

How Forms and Tables Relate

The *form* document into which you enter data is really just a view of the data in the underlying database table(s). Think of the form as a window through which you can see portions on one or more tables.

As you can see from the illustration below, the label preceding each field corresponds to the name of each column in the table. The information that you enter into the form comprises one record and corresponds to one row in the table.

Club ParaDEASE
The Antidote to Documentation

MEMBERS Previous Next

Member ID: 00001

New
Save
Delete
Close
Clubs
Reservations

Last Name: Birnbaum First Name: Roger Initial: I
Street: 87 Grant Street
City: West Roxbury MA Zip Code: 02132-0000
Expiration Date: 11/26/94 Telephone: (617)832-8843

Favorite Activity: WATERSKI Method of Payment: AMERICAN EXPRESS
Card No. 3788-356700-45332

Family Members

First Name	Last Name	Date of Birth
Roger	Birnbaum	06/20/55
Timothy	Birnbaum	04/19/91
Debra	Birnbaum	02/14/85

Membership Fees

Adult Annual Fee \$35.00
Child Annual Fee \$15.00

Adult Fees: 35
Child Fees: 30
Total Due: 65.00

The MEMBERS form, as a User sees it.

....and the underlying database table.

Row#	MEMBER ID	FIRST NAME	MIDDLE	LAST NAME	STREET	CITY	STATE
1	00001	Roger	I	Birnbaum	87 Grant Street	West Roxbury	MA
2	00002	George	R	Perrault	38 Whitney Avenue	Essex	CT
3	00003	Laura	M	Christino	4905 Radford Avenue	Sterling	VA
4	00004	Laura	R	Williams	17 Corinthian Way	Racine	WI
5	00005	Cynthia	T	Riggs	11 Lilac Drive	Bar Harbor	ME
6	00006	Patrick	M	Shannon	3 Pleasant Street	Boston	MA
7	00007	David	S	Johannsson	1709 Division Street	Tulsa	OK
8	00008	Fred	M	LaCoste	487 Lenox Road	Atlanta	GA

Using Multiple Views

DataEase lets you create multiple forms that access one table. When more than one form accesses a table, each form after the first may include a subset of the columns (fields) in the underlying table. In this way you can give groups of users access to only the columns they need to use. For example, the Personnel Department might have access to a form which displays Staff records, built on the STAFF table. Meanwhile the Accounts department also has access to a form which displays Staff records, based on the STAFF table - but their form includes the SALARY details, which are excluded from the Personnel Department's form (see Determining Type of Form, below).

Determining Types of Form

In DataEase there are two types of forms.

- **A form that *defines* a table.** When you want to store a new set or subset of data, you must create a form that defines a table.
- **A form that *uses* an existing table.** If users need to access data stored in an existing database table, you can either give them access to the form that **defines** the table - or you can create a new form that **uses** the same table, but contains only the columns necessary for this particular group of users.

Only one form can **define** a table, but any number of forms can **use** a table.

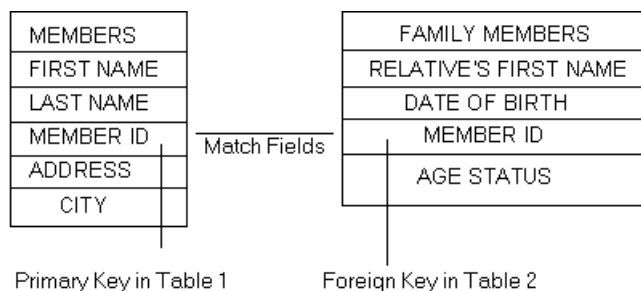
Defining New Views Using QBM

You can use QBM (Query by Model) to create new forms that use existing tables. QBM lets you quickly create custom-tailored views of the data for any number of different individuals or departments within an organization. QBM can also filter and sort the data, before it is presented to the user.

Linking Database Tables

The preceding information explained how to divide your data into separate tables to optimize storage and performance. This section tells you how to define relationships between the individual normalized tables.

A relationship links two tables in the same database. To create a relationship, you recreate the Primary Key of one table as a Foreign Key on the second table.



For example, the relationship between MEMBERS and FAMILY MEMBERS is based on the existence of the MEMBER ID field in both database tables.

Relationships let you combine data from many separate tables into convenient data-entry forms or reports. When tables are related, you can use the DataEase **Multiview**, **Lookup** and **Return Data** features to automate data entry.

Planning Relationships

As you define and normalize the tables in your database, you should evaluate each possible pair of tables and decide which ones should be related, in order to support the data-entry, query and reporting tasks your application requires. List the tables that you want to be related and specify the columns in each that will be used as match fields. You must define the matching Primary and Foreign keys as the same length and type, although other characteristics can vary. For example, since a Sequenced ID is a preformatted Numeric String, the Match field for a SEQUENCED ID must also be defined as a Numeric String.

Defining Relationships

When you define a relationship between two database tables, DataEase lets you use up to three pairs of Match fields. You may need to use up to three pairs to uniquely define a relationship. For example, the PRICES table must use a composite key composed of the CLUB ID, DEPARTURE DATE, and DEPARTURE CITY to uniquely identify each record, since the price of a vacation package depends on transportation costs based on all three values.

If more than three pairs of Match fields are required for a relationship, you may merge multiple fields into one composite field, by using the DQL *Jointext* function.

Relationships Form Options

To define relationships between tables, choose **Application>>Relationships**. DataEase displays the Relationships Form, shown below. To define a relationship between a pair of tables, choose the two tables from the pull-down menus. Then define one or more pairs of Match fields.

For example, the figure below shows the Relationships form record for the CLUBS table, which is related to the CLUB ACTIVITIES table. Notice that the CLUB ID column is used as the Match field for this relationship.

Relationships

CHOOSE THE TABLES TO RELATE...

Records in are related to records in

based on the following fields being equal: (define at least one set of fields)

=

=

=

OPTIONS..

Unique Relationship Names - records in each Table can be referenced as:

(Note: if these tables are used in another relationship, Unique Names are required.)

Referential Integrity - the effect a change to Main Form key field has on SubForm key

(use Toolbar for other record actions)

Determining the Type of Relationship

DataEase relationships are bi-directional. For example, since the MEMBERS form and the RESERVATIONS form are linked by the MEMBER ID match field, you can open the RESERVATIONS form to access member information. Conversely, you can open the MEMBERS form to obtain reservation information.

Three types of relationships can exist between tables: one-to-one, one-to-many, and many-to-many. However, the many-to-many relationship is meaningless, and should be eliminated from your database. It only comes about by mistake.

One-to-One Relationship. Each row in the first table is related to only one row in the second table, and vice-versa.

For example if Club ParaDEASE employs one social director at each club, and each director works at only one club, a one-to-one relationship could be defined between the CLUBS table and the SOCIAL DIRECTORS table. This is illustrated in the figure below.



One-to-many-relationship. In a one-to-one relationship, each row in table 1 may be related to many rows in table 2 and, conversely, any row in table 2 may be related to only one row in table 1.

For example, the Club ParaDEASE application includes several one-to-many relationships such as the relationship between the MEMBERS and FAMILY MEMBERS tables and the relationship between the CLUBS and CLUB ACTIVITIES.

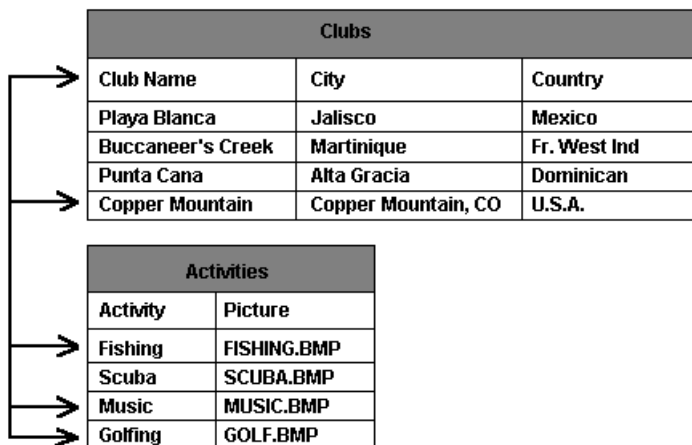


In a database that has been effectively normalized, one-to-many relationships are used more frequently. Many business applications are based on this relationship model, such as one sales region to many sales territories, one department to many employees, or one invoice to many line items.

Note: In the figure above an arrow is used to indicate the "many" side of a relationship. The blunt end of the line between two tables indicates the "one" side of the relationship.

Many-to-many relationships. In a many-to-many relationship, each row in TABLE 1 may be related to many rows in TABLE 2 and, conversely, any row in TABLE 2 may be related to many rows in TABLE 1.

As shown in the figure below, the Club ParaDEASE application contains a many-to-many relationship between the CLUBS table and the ACTIVITIES table (each club offers many different activities and each activity is available at many clubs.)




As you can see, if we did not further normalize these tables, we would need to store the name of each activity that is available at a club in that club's record in the CLUBS table (e.g. CLUB ACTIVITY 1, CLUB ACTIVITY 2, and so on).

A many to many relationship, as this example shows, forces DataEase to store redundant data because this kind of relationship uses repeating columns. For this reason, many-to-many relationships should be eliminated.

Think of many-to-many relationships as two hidden one-to-many relationships (one club to many activities and one activity at many clubs). In the Club ParaDEASE application, we normalized the data by dividing it into three tables: CLUBS (in which each row stores data about one club), ACTIVITIES (each row stores data about one activity), and CLUB ACTIVITIES (each row stores data about one activity at a specific club).

In the figure on the previous page, CLUB ID is the Primary key in the CLUBS form. In CLUB ACTIVITIES, CLUB ID is the Foreign key. The table below compares the definition of the CLUB ID column in these two tables.

Field Characteristics	Clubs	Club Activities	Activities	
	Club ID Column	Club ID Column	Activity Column	Activity Column
Data Type	Sequenced ID	Numeric String	Text	Text
Length	5	5	15	15
Data Entry	Prevent	Allow	Allow	Allow
Indexed	Indexed	Indexed	Indexed	Indexed
Unique	No*	Unique	Unique	Unique

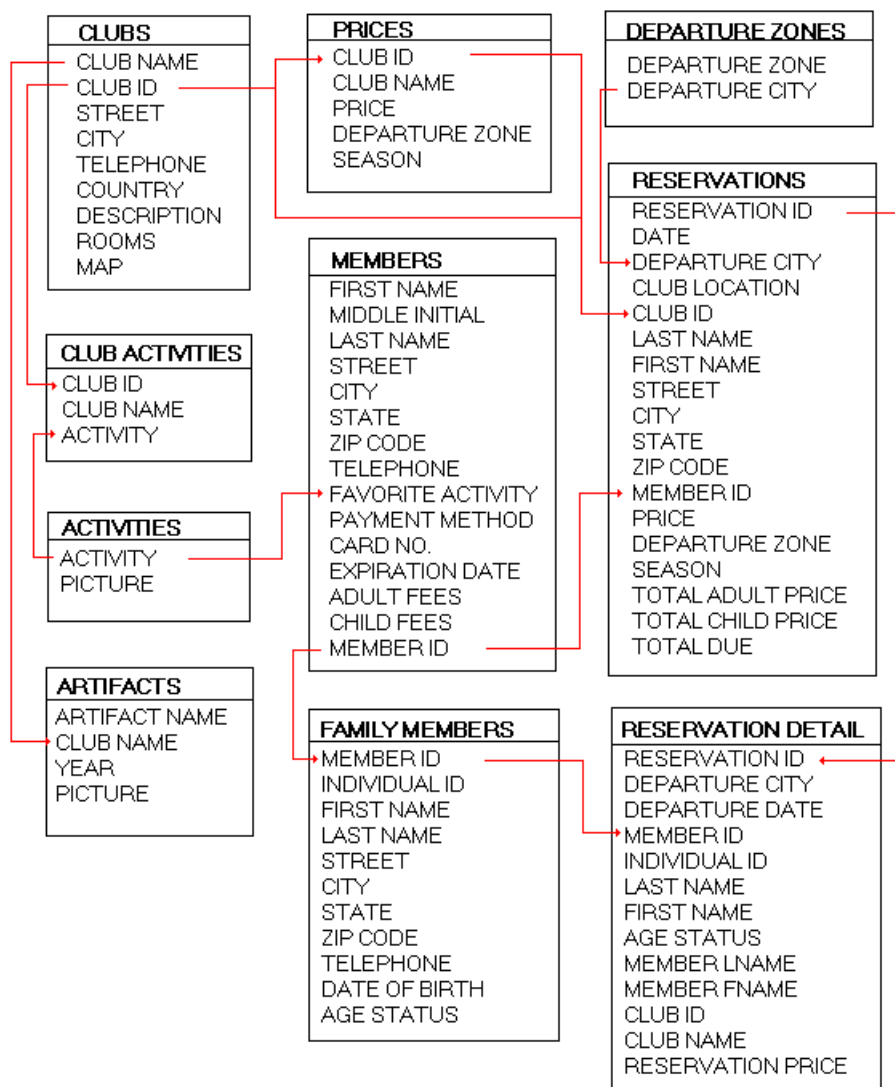


* DataEase does not require a Sequenced ID to be saved as Unique

Diagram of Club ParaDEASE Tables

This diagram shows the tables and the relationships in the Club ParaDEASE application. The lines connecting tables represent relationships. The blunt end of the line indicates the one side, and the arrow indicates the many side of the relationship.

Virtual fields that appear in forms are not shown in the diagram.



All relationships except the following are based on one pair of Match fields. The multiple Match fields in the three relationships listed below.

RESERVATIONS to RESERVATIONS DETAIL (reservation id, member id).

FAMILY MEMBERS to RESERVATION DETAIL (member id, individual id, first name).

RESERVATIONS to PRICES (season, club id, departure zone).

How to Design a Database

1. Before you do anything in DataEase, design your database application on paper. Interview the future users of the application to determine what they would like the application to do. Study existing forms and reports as a source of design information.
2. List all the items of information you want the application to track. Divide the list into two groups: (a) The items that stand alone, such as members, clubs, and reservations in *Club ParaDEASE*, each of these is an entity and will be a table, and (b) The items of information that best describe each entity, such as MEMBER ID, LAST NAME, and FIRST NAME in the Club ParaDEASE MEMBERS table. These are the attributes, which will be the columns in each table.
3. Diagram the tables and determine the Primary key for each table. The Primary key can be a composite key made up of two or three attributes.
4. Decide which tables should be related. Determine the type of relationship that exists between the tables and eliminate any many-to-many relationships. Decide which columns should be used as the Match fields for the relationships and insert the Primary key of one table into the related table as a Foreign key.
5. Move any repeating columns into a new table.
6. Move into a new table any column with a value that does not depend on the entire Primary key.
7. Remove any column with a value that can be derived from other data in a table.
8. Move into a new table any column that creates many blank spaces in the table.
9. List the field characteristics for each attribute: the data type, length, and format, if applicable. List the field data options for each attribute: Is it Unique, Required, or Indexed?

How to Create an Application

1. In Windows, before starting DataEase, create a new directory named for your application.
2. Start DataEase and open the File menu.
3. Choose **File>>New Application**. DataEase displays the New Application dialog.
4. In the Directories list box, double-click on the directory you created to store your application.
5. In the Application Name text box, enter a name of up to 20 characters that describes your application, and then click OK. DataEase displays the New Name and Password dialog.
6. Enter the Name and Password you will use to sign on to the application. (if you leave these text boxes blank, you can sign on to the application just by clicking OK. However, a blank name and Password gives the application no security protection). Click OK. DataEase displays the menu bar in User View.
7. To create a document, choose File-New and an option from the New cascade menu. DataEase displays the New Document dialog, which lets you choose the Style Sheet and table the document uses.

Note: When you create an application, DataEase generates a set of DOS files that are part of your application. Use Windows Explorer to view these files.

How to Create a Form that Defines a Database Table

1. Open the application that requires a new table
2. Choose **File>>New>>Form**. DataEase opens the New Document dialog.
3. Double-click on **New>>Table**. DataEase opens the New table dialog.
4. Type in a descriptive name for your table. Click OK. DataEase displays an empty workspace in Designer View.
5. Use the Objects menu or the Objects palette to define each new field.
6. Choose **File>>Save**.
7. Click on the **User>>View** button on the toolbar to view the form as a database table.

How to Define a Relationship between two fields

1. For the pair of tables, decide which is more important to the database. Think of that table as the Primary table. For a one-to-many relationship, the table on the 'one' side is Primary.
2. Choose the Primary Key that will serve as the match field. Insert the Primary Key as a Foreign Key in the secondary table. Modify the key field's data definition, if necessary.
3. Choose **Application>>Relationships**. DataEase displays the Relationships form.
4. Click the drop-down arrow to the right of the field beneath "Records in" to display the list of Tables. Click the name of the Primary table. Press Tab. Click the drop-down arrow to the right of the field beneath "are related to records in" to display the list of table names. Click the name of the related table. Press Tab.
5. Enter the Match field(s) on which the relationship is based. In the left-hand column, click the drop-down arrow to display the list of column names. Click the name of the Match field for the first table, and press tab. Click the drop-down arrow in the second column, click the name of the second Match field, and press Tab.
6. Type in a Custom Relationship name, if necessary.
7. If the tables will be combined in a multiform, click the drop-down arrow to the right of the field beneath the Subform table name to display a list of Referential Integrity options. Choose an option.
8. Click **Save** to save the new record. Click **Done** to close the dialog.

Chapter 3 : The File Menu

The File menu lets you create, save, open, print, close, and delete documents. Options toward the bottom of the menu let you import data, switch to User View, close the current application, and end the DataEase session.

Each menu option is summarized in the table below and explained in detail in the following pages.

Summary of File Menu Options

Menu Option	Keyboard Equivalent	Menu option is used to....
New	Alt+F, N Ctrl+N	Create a form and database table, or create a report, menu, or procedure.
Open	Alt+F, O Ctrl+O	Open an existing document.
Close	Alt+F, C Ctrl+F4	Close the active document
Delete	Alt+F, D	Delete a document and database table from the current application.
Save	Alt+F, S Ctrl+S	Save changes to the active document.
Save As	Alt+F, A Ctrl+A	Create a duplicate copy of the active document and name the copy.
Save Style	Alt+F, T	Save all the object styles in the active document as a new Style Sheet
Print	Alt+F, P Ctrl+P	Print the field definition and layout information for the active document
Print Setup	Alt+F, R	Select and configure the default printer.
Import	Alt+F, I Ctrl+I	Import data from other DOS and Windows Applications into the active document.
User View	Alt+F, V	Display the active document in User View.
Close Application	Alt+F, L	Close the current application.
Exit	Alt+F, X	End the DataEase session

Creating a Document

When you choose **File>>New**, DataEase displays the **New** cascade menu, which lets you choose the type of document you want to create - a form, report, menu, or procedure.

File	
New	Form...
Open...	Report...
Close	Menu...
Delete...	Procedure...
Save	
Save As...	
Save Style Sheet...	
Print...	
Print Setup...	
User View	
Close Application	
Exit	

New Cascade Menu Options

Form lets you create a record entry form. A form lets you view and enter data in database tables.


Report lets you create a report. A report lets you view and analyze data.

Menu lets you create a custom menu document for your application. A menu lists choices that tell DataEase to perform a specific task, such as open a form, print a report, or exit the menu.

Procedure lets you create a DQL procedure. A DQL procedure includes a script (a set of DQL instructions) that DataEase executes when you open the procedure.

Types of Documents

A Form lets you View and Enter data in a database table.



MEMBERS
Previous
Next

Member ID: **00202**
 New
 Save
 Delete
 Close
 Clubs
 Reservations


Last Name: First Name: Initial:
 Street:
 City: Zip Code: -
 Expiration Date: Telephone: () -
 Favorite Activity: Method of Payment:
 Card No.

Family Members

First Name	Last Name	Date of Birth


Membership Fees
 Adult Annual Fee \$35.00
 Child Annual Fee \$15.00
 Adult Fees: 0
 Child Fees: 0
 Total Due: **0.00**

A Report lets you view or analyse data from an existing table.

BASEBALL


Member Last Name	City	State
Stomboulis	Wilmington	DE
Ruggiero	Ashton	ID
Walsh	Barrington	IL
Rada	Eagle	NE

 Number of members favoring this activity: 6

BIKING


Member Last Name	City	State
Goetz	San Diego	CA
Schmidt	Washington	DC
Roberts	Des Moines	IA
Moran	Columbus	IN

 Number of members favoring this activity: 12

Menus contain buttons with assigned actions, which let you conveniently access frequently used documents or options.



A Procedure includes a script (a set of DQL instructions) that DataEase executes when you open the procedure document.

<pre> For MEMBERS with STATE = "CA" ; list records MEMBER ID ; LAST NAME ; FIRST NAME ; all FAMILY MEMBERS FIRST NAME ; all FAMILY MEMBERS DATE OF BIRTH . </pre>		
Commands	Tables	Columns
for	ACTIVITIES	MEMBER ID
with	CLUB ACTIVITIES	FIRST NAME
list records	CLUB ROOMS	MIDDLE INITIAL
modify records	CLUBS	LAST NAME
delete records	Current	STREET
enter a record	DEPARTURE ZONES	CITY
copy all from	EMPLOYEES	STATE
data-entry	FAMILY MEMBERS	ZIP CODE
define	MEMBERS	TELEPHONE
temp	PRICES 4.5	PAYMENT METHOD
global	RESERVATION DETAIL	CARD NO.
assign	RESERVATIONS	EXPIRATION DATE
message	Sample Form 1	ADULT FEES
input using	Sample Form 3	CHILD FEES

Location of DataEase Documents

When you save a new document, DataEase creates at least one DOS file. DataEase stores the files it creates in the current application's directory. For example, all the files associated with Club ParaDEASE are located in the c:\DFW\CLUB directory.

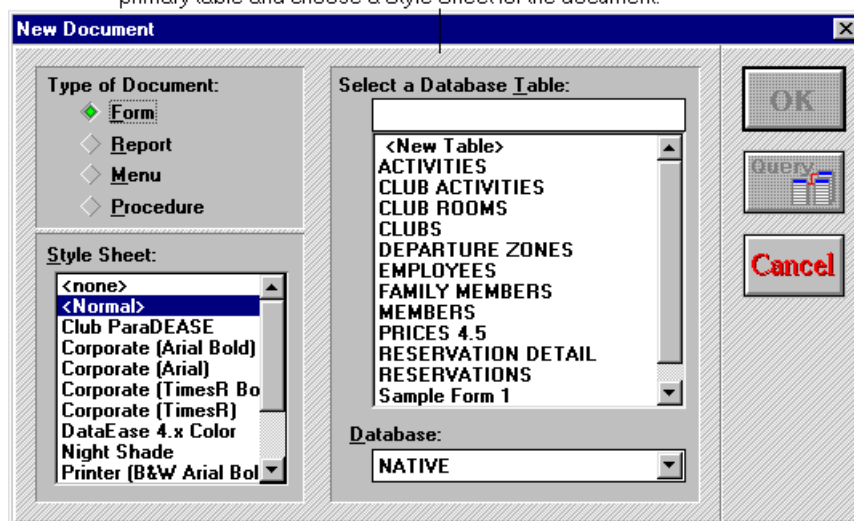
Creating a Document: Overview

Creating a document involves three steps. You must:

1. Choose the type of document from the **New** cascade menu.
2. Choose the data and/or objects that appear on the document.
3. Create a document layout.

When you create a document, DataEase displays the series of dialogs shown below that help you design documents quickly and easily. Each of these dialogs is explained in the following pages.

The New Document dialog lets you choose or create the primary table and choose a Style Sheet for the document.



Query By Model

Related Tables:

<New Relationship>
 CLUB ACTIVITIES
 CLUB ROOMS
 PRICES 4.5
 RESERVATIONS
 Sample Form 1
 Sample Form 3

Add Table Remove

Select Parent Records If Field:

Select this Table's Records If:

Sort by

Summarize

Group by

OK

Cancel

Convert to DQL

CLUBS

CLUB NAME
 CITY
 TELEPHONE
 COUNTRY
 DESCRIPTION
 CLUB ID
 STREET
 ROOMS
 MAP

CLUB ACTIVITIES

ACTIVITY
 CLUB NAME
 PICTURE
 CLUB ID

The Query by Model dialog lets you choose the columns and related tables that appear in the document.

The Layout Options dialog lets you choose from a list of predefined layout formats such as Field/Line or Mailing Label.

Layout Options

Field Layout

Field/Line

Table

Table Across

Recreate

Record Layout Preview

CLUBS

1

Record Size

Label: []

Height: 0.37 Width: 22.39 inches

Gap: 0.01 Gap: 0.01

OK

Cancel

Appearance

☐ Add Row#

☒ Add Labels

☐ Link Labels

☐ Shade Tops

☐ Shade Sides

☐ Add Grid

☐ Add Scrollbar

☒ Add Title

Scrollbar Direction

☐ Horizontal

☒ Vertical

SubForms

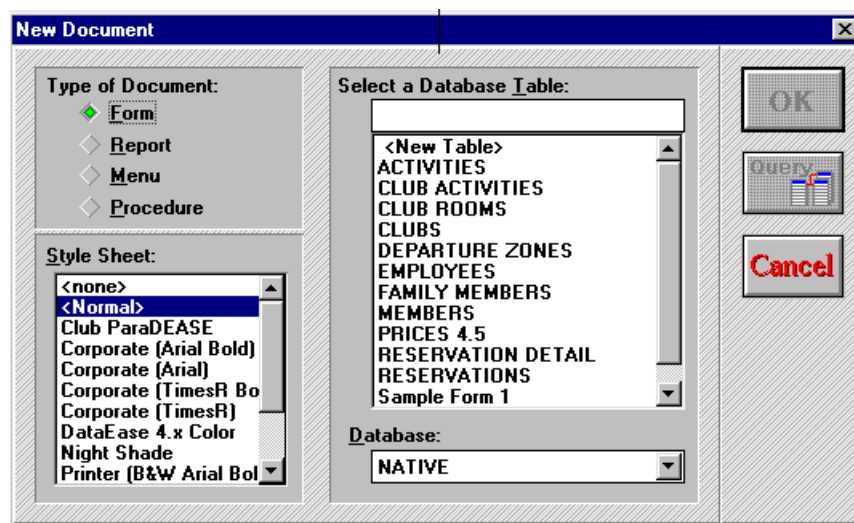
☒ Cascade

☐ Align

☐ Add Scrollbars

New Document Dialog Options

After you choose the document type, DataEase displays the New Document dialog. This dialog lets you choose a database table and a Style Sheet for the document.



Type of Document displays the type of document you are creating. Choose:

- **Form** to create a DataEase record entry form
- **Report** to create a report
- **Menu** to create a custom menu document for your application.
- **Procedure** to create a DQL Procedure.

Select a database table tells DataEase which table the document uses. A form can either *define* or *use* an existing table. Reports and procedures always *use* an existing table. A menu is never associated with a table.

If you are creating a form or report that will use an existing table, choose a table from the **Select a Database Table** list box. If you are creating a new table, see the section **Creating a Form that Defines a table**.

Style Sheet tells DataEase which Style Sheet the document uses. The Style Sheet determines the display attributes for each object in the document, such as the object's colors, font, and border thickness.

If you do not select a Style Sheet, DataEase uses the Normal Style Sheet. The basic Object Styles included in the Normal Style Sheet can be used as a starting point for creating new Style Sheets.

When you create a new form or a report that uses a database table, DataEase automatically applies the default Object Styles from the selected Style Sheet to the new objects.

Database lets you select a database connected to the application. The default is Native.

If you run DataEase in a single-user or multi-user file server environment, DataEase lists only one option: Native. In this environment, all tables are stored in the Native (i.e. DataEase) database located in the application directory.

However, if you run DataEase in a Client-server environment, the DataEase drop-down list includes the SQL and foreign databases linked to the application. In this environment, you can create a table in any database linked to the application (security rights allowing).

To use or define a table in a database other than the one displayed, you must first choose the database and then choose or name the table.

To store data in a database other than the default database, double-click on the name of the database listed in the drop-down list.

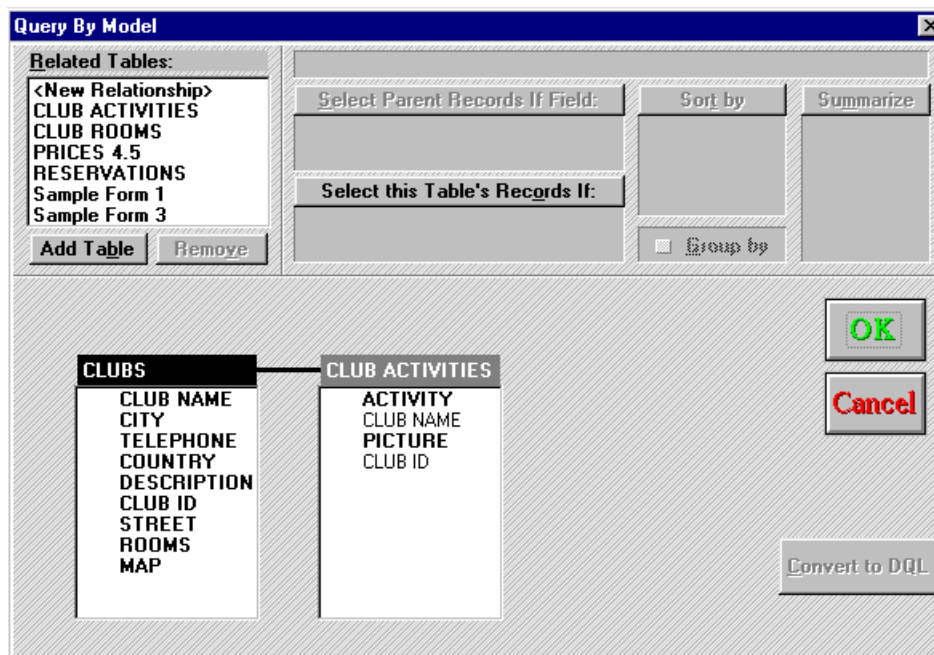
If you prefer an external database as the default database, choose **Application>>Database links**.

Note: To define a table in an SQL database, you must have CREATE TABLE privileges on the server, in addition to the DataEase security level the application designer specifies.

Query Opens the Query by Model dialog shown below. The Query by Model dialog automatically creates a graphical representation of all the tables the current document accesses, and their column headings.

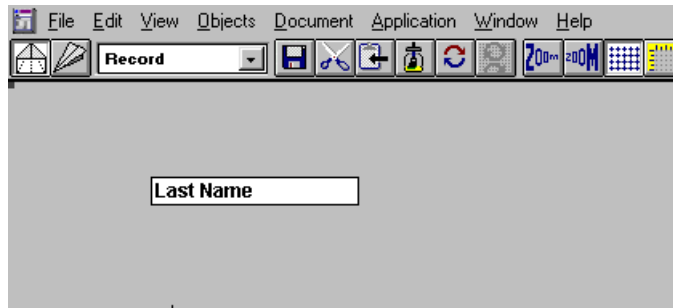
You can use the Query By Model dialog to:

- View the tables and relationships that a document uses.
- Select fields to display in a report.
- Select fields to use as sort and selection criteria.
- Create Calculated and Summary Fields.
- Create fields that display data from related tables.

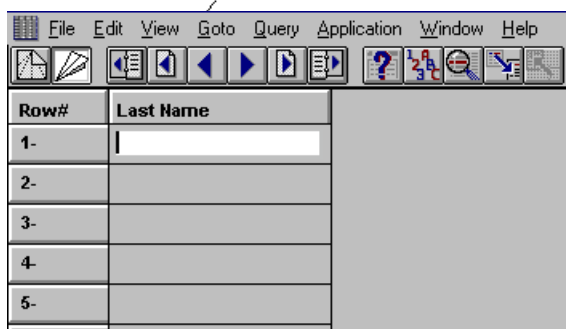


Creating a Form that Defines a Table

When you create a form that defines a table, DataEase creates a corresponding column in the database table for each field you add to the document.

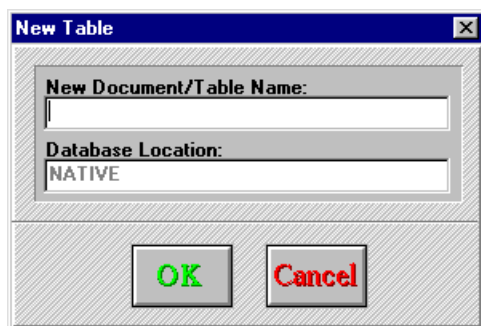


When you create the LAST NAME field on the form....
...DataEase automatically creates a LAST NAME column in the table...which is why the form 'defines' the table.



New Table Dialog Options

When you choose New Table to create a form that *defines* a table, DataEase displays the New Table dialog shown below. This dialog lets you name a document and table.



Each document in an application must have a unique name. If you try to use an existing name, DataEase displays an alert message. When you click OK to close the alert message, DataEase redisplay the New Table dialog. Type a unique name and click OK.

New Document/Table Name lets you enter the name of both the document and the table. Enter a name of up to 20 characters.

Database Location displays the name of the database in which the new table will be stored.

How to Create a Form and Table

1. Choose **File>>New>>Form**. DataEase displays the New Document dialog.
2. Double-click on New Table in the Select a Database Table list box. DataEase displays the New Table dialog.
3. Enter a name of up to 20 characters.
4. Create all the fields that you want on the form.
5. Choose **File>>Save** to save the form and table.

How to Create a Form Over an existing Table

1. Choose **File>>New>>Form**. DataEase displays the New Document dialog.
 2. Choose a table from the Select a Database Table list box and click OK. DataEase displays the Layout Options dialog.
- or**
1. Choose a table from the Select a Database table list box and click Query. When DataEase displays the Query By Model dialog box, choose the tables and columns you want to include in the form.
 2. Choose the Field Layout and use the Record Layout Preview Plus and Minus Sign buttons to indicate the number of records to display, then press OK.
 3. Choose **File>>Save As**. Name the new form, and press OK.

Creating a Form or Report that uses a Database Table

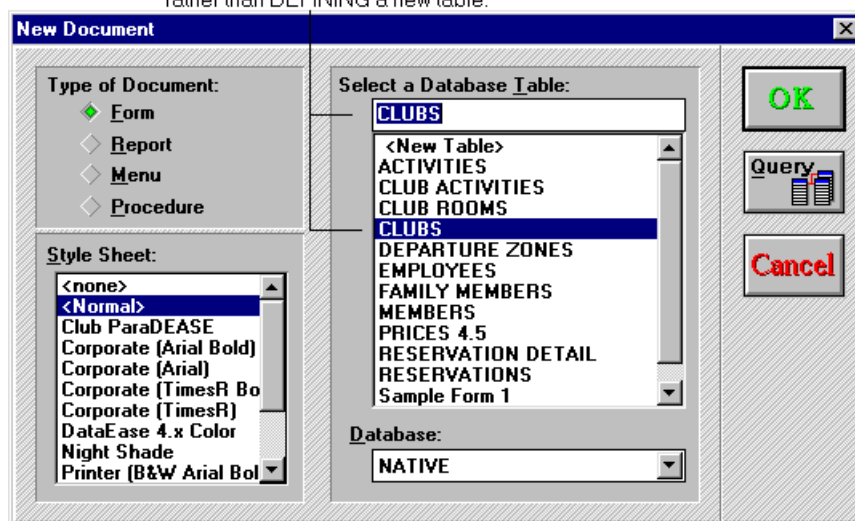
Creating a form or report that uses a table involves four steps:

1. Choose **File>>New>>Form** or **File>>New>>Report**. DataEase displays the New Document dialog.
2. Click form or report, click the name of a table from the Select a Database table list, and click on the Query By Model button.
3. DataEase displays the Query by Model dialog. From the list displayed, click the names of the data columns you wish to use in your form or report.
4. Click OK. DataEase displays the Layout Options dialog box. Choose the format you prefer and click OK. DataEase generates the form.

When you create a form which uses a table, you can delete fields from the layout that you do not need in the new document, but you **cannot** modify a column definition, delete a column, or add a new column in the underlying table. However you can add Virtual Fields, since they do not affect the structure of the underlying table.

You can create multiple forms over a single database table, then customize each form for a specific group of users. When a user enters or changes records, DataEase makes the corresponding changes in the underlying table.

Creating a form which USES an existing Table,
rather than DEFINING a new table.



Creating a Document Layout

When you click OK to close the Query by Model Dialog, DataEase displays the Layout Options dialog shown below. This dialog is used to:

- Choose a predefined layout for a document.
- Change the layout of an existing document

The layout you choose determines how fields are arranged on a document. The Layout Options dialog also lets you display multiple records vertically or horizontally, as well as row numbers, field labels, scroll bars, and other user interface enhancements.

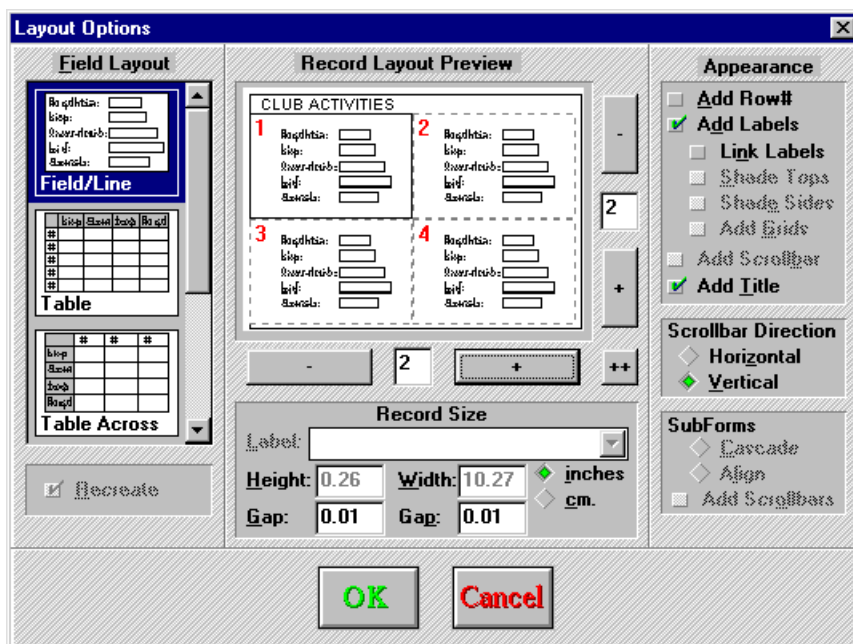
Note: The layout options dialog is not used with a menu.

Layout Options Dialog Options

Field Layout tells DataEase how to arrange the fields on a new document. When you close the dialog, DataEase automatically copies the table columns to the document according to the layout you select. Each Field Layout is illustrated in the Record Layout Preview in the Layout Options dialog.

Record Layout Preview tells DataEase how many records to display horizontally and vertically. By default, DataEase displays one record at a time.

Use the plus and minus buttons to the right of the Preview to indicate the number of records that appear from top to bottom. The buttons below the Preview change the number of records that appear from left to right. The Double plus (++) Sign button simultaneously adds a record horizontally and vertically to your layout.



The Record Layout Preview box, here showing a 2 * 2 Field/line format being selected.

The Field/Line format in Designer View, here showing the 2 * 2 layout selected above.

CLUB ACTIVITIES	
ACTIVITY	ACTIVITY
CLUB NAME	CLUB NAME
PICTURE	PICTURE
CLUB ID	CLUB ID

Modifying Layouts

You can use the Layout Options dialog to change the layout of a document. You can choose Original Form, Field/Line, Movie Credits, Custom, Table, or Table Across. When you create a new layout, DataEase deletes all non-database objects (including background images, buttons, and Object Styles).

If you add or subtract Form or Field objects without requesting a different layout, DataEase displays a dialog asking if you want to create a new layout or merge/transfer your changes into the existing layout. Choose either the Merge or Transfer option (Transfer is generally recommended) to avoid losing the images, buttons, and styles already incorporated into the document.

How to Create a Form with a Custom Layout

1. Choose **File>>New>>Form**. DataEase displays the New Document dialog.
2. Choose a Style Sheet and a table and click OK. DataEase displays the Layout Options dialog.
3. Choose the Custom Field Layout and Record Layout. Choose the Appearance options, corresponding to the items that you want to include in your layout.
4. Click OK. DataEase displays a form with a blank layout.
5. Select the Field tool from the Object palette. Position the field icon on the layout and click the mouse. DataEase displays the Field Definition dialog.
6. Choose a field from the Field Name list. DataEase displays the field characteristics box in the dialog.
7. Repeat steps 5 and 6 for each field you want to include.
8. Continue designing the layout of the form, creating any additional objects you want to include.
9. Choose **File>>Save As**. Name the new form and click OK.

How to Create a DataEase Form over a DataEase for DOS Table

1. Open the original DataEase for DOS application using DataEase.
2. Choose **File>>New>>Form**. DataEase displays the New Document dialog.
3. Choose the Style Sheet you want to use.
4. Choose a table from the Select a Database Table list box and click OK. DataEase displays the Layout Options dialog.
5. To keep the existing layout, choose Original Form. To create a new layout, choose Field/Line, Table, Table Across, Mailing Labels, Custom, or Movie Credits.
6. Click the Record Layout Preview plus and Minus sign buttons to indicate the number of records you want to display.
7. Choose the Appearance options corresponding to the items that you want to include in your layout.
8. Click OK. DataEase displays the form with the specified layout.
9. Continue designing the layout of the form, creating any additional objects you want to include.
10. Choose **File>>Save As**. Name the new form and click OK.

How to Create a Report

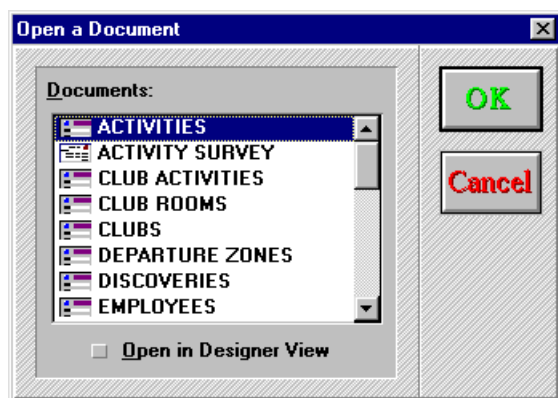
1. Choose **File>>New>>Report**. DataEase displays the New Document dialog.
2. Click on the Query By Model button in the New Document dialog. DataEase displays the Query By Model dialog.
3. Double-click the table columns you want to use as fields in the report.
4. Using the Query By Model dialog, you can add tables, select some or all columns from each table, select specific records, as well as Group, Sort and Summarize the report data.
5. After you complete your selections, click OK. DataEase displays the Layout Options dialog. Choose the Field and Record Layout that you want and click OK. DataEase automatically creates the report with the selected layout and displays the report in a new window in Designer View.
6. If you want to run the report and view the data, switch to User View. DataEase displays the Print dialog box.
7. If you want to view the data, choose Window as the Print destination and click OK. DataEase displays the report data according to the specification of the Query By Model and Layout Options dialogs.

How to Create a Menu

1. Choose **File>>New>>Menu**. DataEase displays the New Document dialog with the list of tables deactivated.
2. Choose a Style Sheet and click OK. DataEase displays a menu with a blank layout.
3. Design the layout of the menu by adding objects.
4. Choose **File>>Save As**. Name the new menu and click OK.

Opening a Document

When you choose File-Open, DataEase displays the Open a Document dialog, which lets you open a document in the current application.



Open a Document Dialog Options

Document lists all the documents in the current application. Click on a document to select it. By default, all documents open in User View.

Open in Designer View tells DataEase to open the document in Designer View.

Maximum Number of Open Documents

DataEase lets you open up to 11 documents. This count includes the Application Catalog and document icons. When you try to open a twelfth document, DataEase displays a message informing you that you have reached the document window limit. Click OK and close any document you aren't using.

For convenient access, you can reduce a document to an icon instead of closing it.

DataEase lets you open multiple copies of the same document. However, you cannot change a document's table definition when that document is open in User View in another window.

Note: You can set the initial size and location of a document window and the Initial Action of a form (e.g. New Record, or First Record) in the Document Properties dialog.

Opening a Document that Accesses an SQL Table

To open a document that accesses an SQL table, the SQL Engine also must recognize your identity. If the SQL engine does not recognize your identity, DataEase displays a Login Failure dialog.

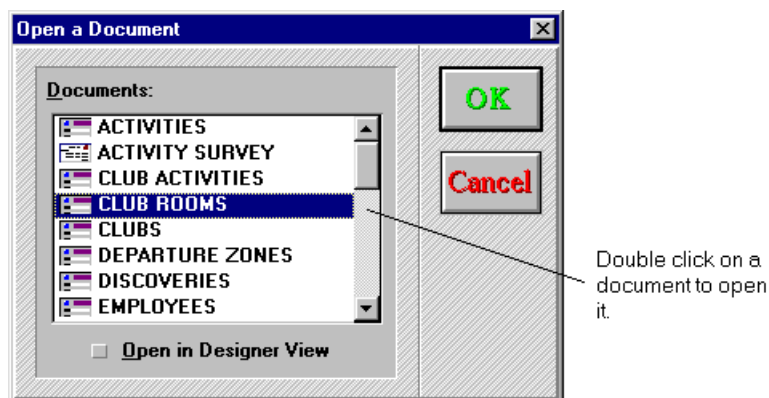
Login Failure Dialog Options

Name lets you enter a User Name that is a valid Login Name on the SQL engine.

Password lets you enter a Password (if one is required) that is recognized by the database server. If DataEase displays this dialog, ask your system administrator for a valid User name and Password combination.

How to Open a Document

1. Choose **File>>Open**. DataEase displays the Open a Document dialog.
2. To open the document in User View, double-click on the document name,
...or
To open the document in Designer View, click on the Document name, check the Open in Designer View box, and click OK.



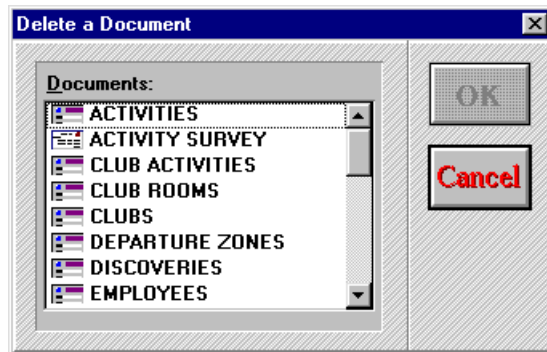
Closing a Document

When you choose **File>>Close**, DataEase closes the selected window.

If you choose **File>>Close** or **File>>Exit** before saving layout or data changes, DataEase displays an alert message. Click **Yes** to save the changes and exit. Click **No** to abandon changes and exit, or **Cancel** to return to DataEase.

Deleting a Document

When you choose **File>>Delete**, DataEase displays the Delete a Document dialog, which lets you delete a document (and, optionally, the corresponding table) from the current application.



Before deleting a document, DataEase displays an alert message. Click **OK** to delete the document, or **Cancel** to leave the document intact.

Deleting a Form that Defines a Table

If you delete a form that defines a database table, DataEase asks if you want to delete the table. Choose:

- **Yes** to remove the form, table, and all associated data and index files from the disk.
- **No** to remove only the selected form.
- **Cancel** to leave the form and table intact.

If a table you want to delete is defined by a Subform, DataEase displays a third alert message with the same choices that are listed above. This message lets you reconsider the deletion.

To delete a table, all documents that use the table must be closed, including the form that defines it.

When you delete a table, DataEase deletes all the relationships that are associated with it.

How to Delete a Document and/or Database Table

1. Choose **File>>Delete**. DataEase displays the Delete a Document dialog.
2. Double-click on the document name.
3. DataEase displays the Delete Document alert message. Click OK.
4. If DataEase asks if you want to delete the table as well, click **Yes** to delete the database table and all its data, or **No** to delete the form only.

Note: Because you control a table through the form that defines the table, if you delete a form that defines a table you should create another form to define that table. Choose or create another form that uses the table, then click "Defines Table" in the Document Properties dialog, and save the document.

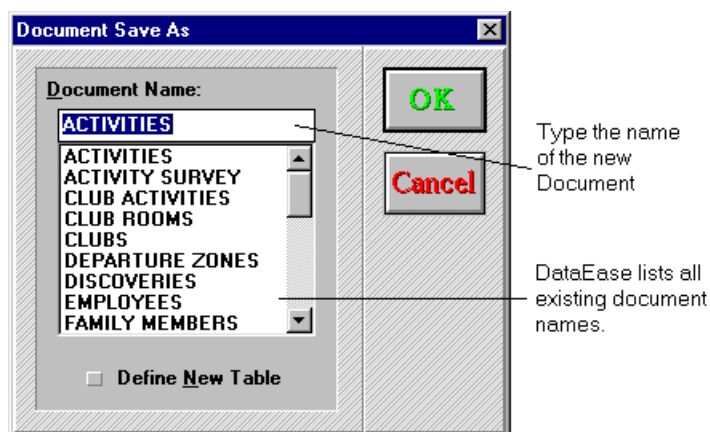
Saving a Document

When you choose **File>>Save**, DataEase saves all the changes made to the active document to disk.

Before you can save a form that defines a table, you must define at least one field.

Note: You should save your work frequently to prevent it from being lost due to a power failure or other mishap.

When you choose **File>>Save As**, DataEase displays the Document Save As dialog, which lets you duplicate the active document.



Document Save As New Table Dialog Options

Document Name lets you enter a name of up to 20 characters for the document. The name can include letters, digits, and spaces. We recommend that you begin the name with a letter.

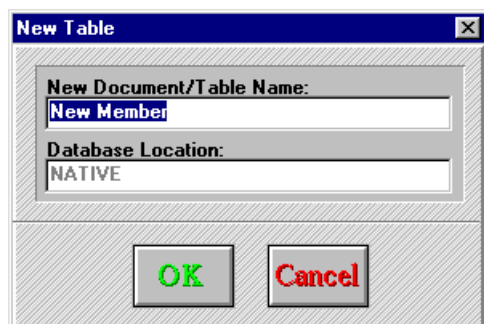
Define New Table tells DataEase to create a duplicate form and table. If you do not choose Define New Table, the new form uses the table associated with the original form. This option appears only when you choose **File>>Save As** to duplicate a DataEase form that defines a table.

How to Save a Document

1. To save a document, choose **File>>Save**.
2. To save a duplicate of a document under a new name, choose **File>>Save As**.

Defining a New Table

When you choose Define New Table, DataEase displays the Document Save As New Table dialog, which lets you create, name, and store the database table associated with your form.



Document Save As New Table Dialog Options

Table Name displays the name of the database table associated with the current form.

If you want to create a new table, enter a table name. You can use either upper or lower case letters in document names (i.e. Clubs or CLUBS) because DataEase is not case sensitive. If you try to use a name that already exists, DataEase displays an error message. Click OK and enter a unique name.

Database Location displays the name and location of the database that stores the table.

If you define a new table and your application is linked to an SQL database, you can choose a different database in which to store the table. Otherwise, DataEase stores it in the Native database.

Copy Data tells DataEase to copy the data file associated with the selected form. The default is copy data. The data appears in the new form when you open it in User View. Otherwise DataEase creates a new (empty) data file for the form.

Copy Relationships tells DataEase to copy all relevant records in the relationships form. The default is copy relationships. In copying relationships DataEase replaces the name of the original table with the name of the new table in each relationships record.

If you deselect Copy Relationships, you must manually define any required relationships.

Note: DataEase automatically reorganized the data in the new table.

Tip: You can use **File>>Save As** to create a new view of a database table, with fewer fields, or create a DataEase document over a DataEase character-based table. Be sure you do not select "defines new table".

You can use **File>>Save As** to move a table between databases, even between those of different engine types.

Modifying an Existing Table

If you plan to create a modified version of an existing table with a large number of records, use the following method so the data is reorganized just once.

How to Save a Modified Table

1. Open the form that defines the table and make any changes to the table definitions.
2. Choose **File>>Save As**. DataEase displays the **Document Save As** dialog.
3. Choose Define New Table and enter a new document name.

To make more extensive changes, open the form that defines the table and choose File-Save As. Check Define New Table to create a second copy of the table. Then open the new form and make your changes, saving often.

DataEase DOS Filenames

When you save a new form and table, DataEase creates many DOS files distinguished by different filename extensions:

- Table Definition File (TDF filename extension),
- Table Data File (DBM Filename extension),
- Document File (FRM Filename extension).
- Style Sheet File (STY filename extension).
- Index File (!?? Filename extension). DataEase creates a separate index file for each column you index. The ?? in the DOS filename for an Index file is a two-digit hexadecimal number that represents the relative position of the index file.

How DataEase Assigns DOS Filenames

When DataEase assigns file names to the DOS files it creates, it uses the following rules:

- The first four characters in the document name are the first four characters in the Table Definition, Table Data and Document file names.
- For example, DataEase uses Club as the first four characters when creating the DOS filename for the Clubs database table (i.e. CLUBCAAA.TDF).
- The first four characters in the Style Sheet Name are the first four characters in the Style Sheet filename.
- For example, DataEase uses Club as the first four characters when creating the DOS filename for the Club ParaDEASE Style Sheet (i.e., CLUBCAAA.STY).
- The first letter in the application name is always the fifth letter in the DOS filename it creates.
- For example, DataEase uses the letter C as the fifth letter in each DOS filename it creates for the Club ParaDEASE application. Thus DataEase uses CLUBC as the first five characters when creating the DOS filename for the CLUBS Multiform.
- DataEase derives a unique filename for each DOS file by automatically incrementing the letters assigned to each type of file when assigning the last three letters in its filename.

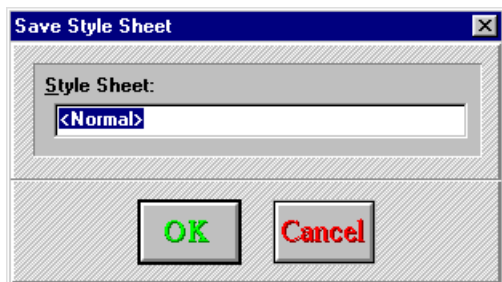
- For example, when you create CLUBS table, DataEase names the Table Definition file CLUBCAAA.TDF. If you subsequently create the CLUB ACTIVITIES table, DataEase names the second Table Definition file CLUBCAAB.TDF (incrementing the last three letters from AAA, to AAB, to AAC, etc).

The examples below show how DataEase names the different DOS files it creates when you design documents. Two forms from the Club ParaDEASE application are shown.

- Form CLUBS has the following DOS file names:
 - Document name of CLUBCAAA.FRM
 - Table name of CLUBCAAA.TDF
 - Data file name of CLUBCAAA.DBM
 - Index file names of CLUBCAAA.I01 and CLUBCAAA.I06
- Form ACTIVITIES has the following DOS file names:
 - Document name of ACTICAAB.FRM
 - Table name of ACTICAAB.TDF
 - Data file name of ACTICAAB.DBM
 - Index file name of ACTICAAB.I01

Saving a Style Sheet

When you choose **File>>Save Style Sheet**, DataEase displays the Save Style Sheet dialog, which lets you save changes to a Style Sheet. You can also create a Style Sheet by saving the current Style Sheet under a different name.



Save Style Sheet Dialog Options

Style Sheet lets you type the name for the new Style Sheet. Style Sheet names can be up to thirty characters long and can include letters, digits, and spaces.

How DataEase Stores a Style Sheet File

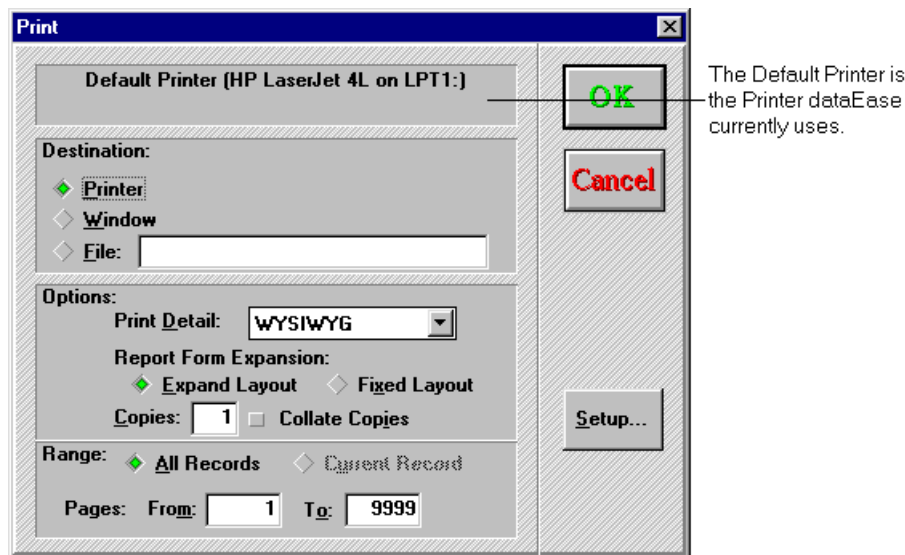
DataEase stores the DOS file for a new Style Sheet in the application directory, so that you can create a default Style Sheet for each application.

DataEase is shipped with several predefined Style Sheets that can be used to create an unlimited number of Object Styles. These Style Sheets are automatically installed in the C:\DFW\STYLES subdirectory.

If you want a Style Sheet to be available for you to use with documents in all your DataEase applications, copy the file into the C:\DFW\STYLES subdirectory.

Printing Document Design Information

When you choose File-Print DataEase displays the Print Dialog, which lets you print the document layout.



Print Dialog Options

Destination indicates the Printer destination. In Designer View, the Print Destination can either be Printer or File. Choose:

- Printer to send the document to the default printer.
- File to copy the document to the disk file you specify in the text box that follows this option. You can print this file later. Enter the full path name of the file as shown below.



If you do not specify a path name in the text box when you print to a file, DataEase saves the file in the application directory.

Note: The option to print to Window is grayed out and inactive while in Designer View.

Options is used to set any of the following:

- **Print Detail** specifies the print quality. In Designer View, DataEase automatically uses WYSIWYG (What You See Is What You Get) to print your document in multiple type faces and to include images and other graphical elements.
- **Include Definition** prints the definition of the current document in addition to the layout. The definition lists the properties and location of the document and the display attributes and other characteristics of each object. The objects are arranged in the order they appear, from left to right and from top to bottom.

- **Copies** let you print the number of copies specified in the text box. The value must be 1 or greater.
- **Collate Copies.** Turns on or off the feature that prints pages in proper numerical order when you print multiple copies of a document. To use this feature, your printer must support Collate Copies.

If you do not specify different Options settings, DataEase prints one copy and turns Collate Copies off.

Range settings are active only in User View.

Pages tells DataEase which pages of a multiple page layout to send to the printer. By default, DataEase prints all pages. Document layout pages print in order from left to right and then from top to bottom. To print a limited number of pages, enter a number in:

- **From** to specify the first page.
- **To** specify the last page.

Setup displays the print setup dialog. For more information see the section Setting up the Printer.

Canceling a Print Job

When you click OK to close the Print dialog, DataEase reduces the active document to an icon, creates a print job in your system's memory, and send the print job to Windows Print Manager. DataEase then displays a printing status window that lets you cancel the print job.

The status window indicates the device name, the port it is assigned to, and the name of the document you are printing.

DataEase automatically restores the document to its previous size when the program finishes printing.

Note: If layout objects of similar hue appear next to each other, they may be difficult to distinguish in the printer.

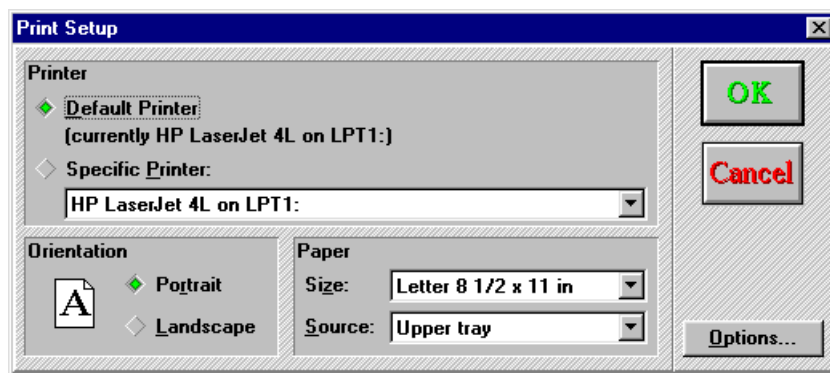
How to Print a Document Layout

1. Choose **File>>Open** and click the Designer View check box. Highlight the document you want to print and click OK.
2. Choose **File>>Print**. DataEase displays the Print dialog.
3. To print the selected pages, enter the number of the first page in the **From** text box and the number of the last page in the To text box.
4. Click OK. DataEase prints the Document Properties first, an illustration of the Document Layout next, and information on each object on the remaining pages.

Setting up the Printer

When you choose File-Print Setup, DataEase displays the Print Setup dialog which lets you select the printer and change the printer sessions.

The appearance of the Print Setup dialog varies with the default printer. You can only choose features supported by your printer.



Print Setup Options Dialog

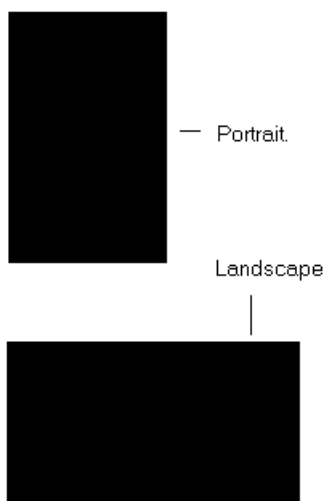
Printer tells DataEase which of the active printers to use. Choose:

- **Default Printer** to select the current printer. DataEase automatically uses the window default printer.
- **Specific Printer** to change the Default printer.

Note: The Print Setup dialog lists only the printers you have installed and specified as active in Windows. To install and activate other printers, use the Windows Control Panel.

Orientation tells DataEase the default page orientation. Choose:

- Portrait to print using vertical orientation.
- Landscape to print using horizontal orientation.

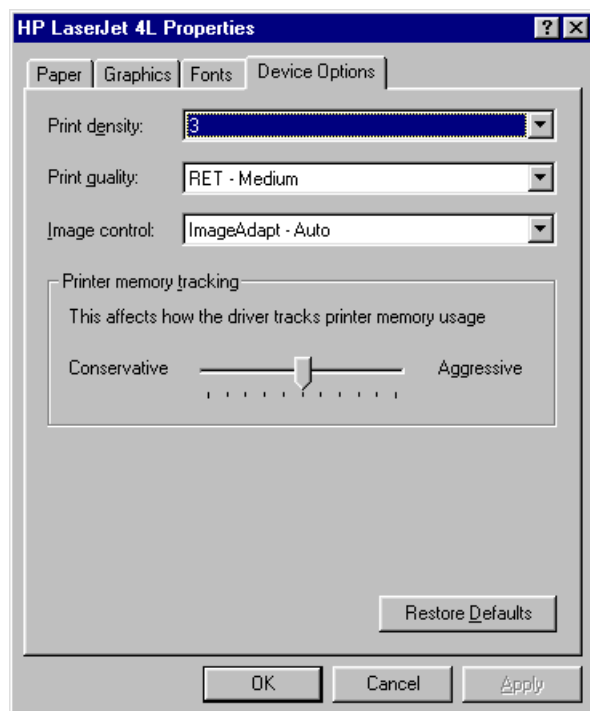


Paper tells DataEase which paper size and sheet feeding mechanism to use when printing a document. Choose:

- **Size** to select a paper size that is supported by your printer (e.g. 11" x 14").
- **Source** to select from the available sheet feeding mechanisms (e.g. Upper Tray, Lower Tray, Tractor or manual).

Note: You can also change print settings using the Windows Control Panel. However, changes made using the Control Panel affect **ALL** your Windows applications. Changes made in the Print Setup dialog affect your DataEase applications only.

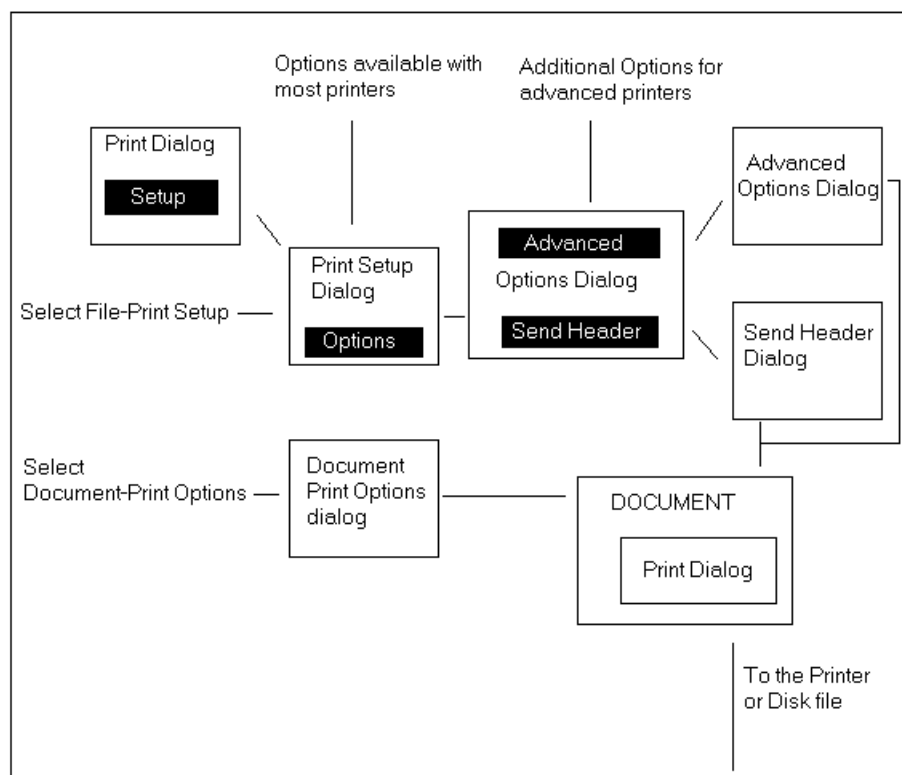
- **Options** display the options dialog, which lets you specify additional options for the selected printer, such as print resolution, and reduce or enlarge the printed image.



Sequence of Print Dialogs

The diagram below shows how the Print and Print Setup dialogs are interrelated. Text in reverse type represents a button. Settings specified in the Print and Print Setup dialogs override the Print Settings (specified in the Document Print Options dialog) that are saved with the document.

Many options you set in the Print and Print Setup dialogs have no effect when you print to a window in User View.



How to Change the Default Printer

1. Choose **File>>Print Setup**
2. Click on the specific printer drop-down arrow.
3. Click on the name of the printer.
4. Click OK. DataEase displays the Print Setup dialog with the new printer listed as the default.

How to Set Printer Default Settings

1. Choose **File>>Print Setup**. DataEase displays the Print Setup dialog.
2. Choose the default Print Orientation (Portrait or Landscape).
3. Click on the Size drop-down arrow. Choose the default paper size.
4. Click on the Source drop-down arrow. Choose the default paper tray or paper feed method.
5. Click Options. DataEase displays the Options dialog. Choose the value you want and click OK to close the Options dialog.
6. Click OK to choose the Print Setup dialog. The settings you choose determine the default settings for the page orientation, paper size, and paper feed method.

Importing Data

The File Menu includes an Import option that lets you quickly import large amounts of data from other DOS and Windows applications.

DataEase lets you import data into any database table with columns defined to match the Data Type and length of incoming data. You can use the Import option to add data to an existing table or design a new form and table with fields that match the incoming data.

For detailed instructions on using the Import function, see the File Menu chapter of the Users Guide.

When to use Import

The Import command lets you import data from other applications for a variety of uses, such as:

- Upgrading from another product using the Import command to convert your existing data into the DataEase format.
- Taking advantages of disk-based mailing lists, catalogues, and other data packages available from independent vendors.

Switching from Designer View to User View

DataEase can display a document in two views.

- **User View** is a data-oriented environment. When you display a DataEase form in User View, you can use it to view, enter, and modify record data. User View also lets you use Query By Form techniques to find and analyze data.
- **Designer View** is the application design environment where you create the data-entry forms, reports, and custom menus used in your application.

When you choose **File>>User View**, DataEase displays the active document in User View.

If the document is a form, DataEase indicates in the Status Bar which record is on screen: NEW or On x (where x is the current record row number).

The Title Bar indicates the MEMBERS form is opened in Designer View

The screenshot shows the DataEase application window titled "DataEase: Club_ParaDEASE - [DESIGN FORM : MEMBERS]". The menu bar includes File, Edit, View, Objects, Document, Application, Window, and Help. The toolbar contains various design tools. On the left, there is a logo for "Club ParaDEASE" with the tagline "The Antidote to Documentation" and a "Member ID: MEME" field with a "New" button below it. The main area displays the "MEMBERS" form with fields for Last Name (LAST NAME), First Name (FIRST NAME), Initial (M), Street (STREET), City (CITY), ST., Zip Code (ZIP CODE), Expiration Date (EXPIRAT), and Telephone (TELEPHONE). Navigation buttons "Previous" and "Next" are at the top right.

Choose File-User View to display the document in User View

The screenshot shows the DataEase application window titled "DataEase: Club_ParaDEASE - [FORM : MEMBERS]". The menu bar includes File, Edit, View, Goto, Query, Application, Window, and Help. The toolbar contains various data navigation and editing tools. The left sidebar is identical to the Designer View, showing the "Club ParaDEASE" logo and "Member ID: 00202" with a "New" button. The main area displays the "MEMBERS" form with empty input fields for Last Name, First Name, Initial, Street, City, ST., Zip Code, Expiration Date, and Telephone. Navigation buttons "Previous" and "Next" are at the top right.

Closing an Application and Exiting DataEase







When you choose **File>>Close Application**, DataEase closes the current application, including all the open documents and the Application Catalog Window. Before closing the application, DataEase displays a Close Application alert message, which lets you return to the application.

When you choose **File>>Exit**, DataEase returns you to the Windows Desktop. When you choose this option, DataEase displays a Close Application alert message, which lets you cancel the action and return to DataEase.

If you choose **File>>Close Application** or **File>>Exit** before saving layout or data changes, DataEase displays an alert message. Click Yes to save the changes and exit, No to abandon any changes and exit, or Cancel to return to DataEase.

How to Close an Application or Exit DataEase

1. Choose **File>>Close Application** or **File>>Exit**. DataEase displays the Close Application alert message.
2. Click OK. If you have an open document that has changed, DataEase displays the Closing Document alert message once for each document.
3. Click Yes. DataEase saves your changes. When all documents are closed, DataEase displays the Desktop menu bar. If you exit DataEase, you return to Windows.

Toolbar Icon (If Any)	Menu Option	Keyboard Equivalent	Description
	UNDO	Alt + E, U Ctrl + Z	Reverse the previous Action (If it is reversible).
	REDO	Alt + E, R Shift + Ctrl + Z	Reverse the previous Undo.
	CUT	Alt + E, T Ctrl + C	Select an object(s), delete it from the document layout, and place it on the clipboard.
	COPY	Alt + E, C Ctrl + C	Select an object(s) from the document layout, and copy it to the clipboard.
	PASTE	Alt + E, P Ctrl + V	Paste the contents of the clipboard on to the document layout.
	PASTE LINK	Alt + E, L Ctrl + L	Insert an Object copied from a document in another Windows program into a DataEase document. The linked object is displayed in DataEase but stored in the original Windows program.
	PASTE SPECIAL	Alt + E, S	Insert an object copied from a document in another Windows program into a DataEase document. You can choose to LINK or EMBED the object, or paste a static image.
	ALIGN	Alt + E, N	Line up the selected objects - by an Edge, the Centre, or the Grid - based on a selected reference object's position

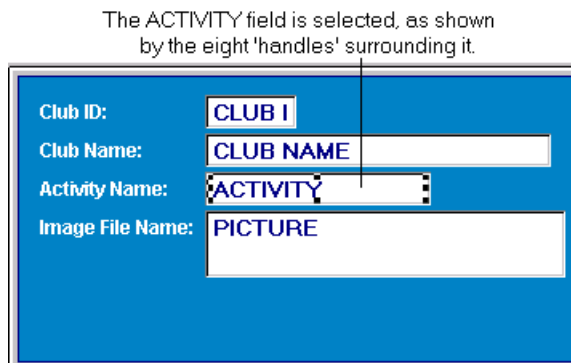
Toolbar Icon (If Any)	Menu Option	Keyboard Equivalent	Description
	SAME SIZE	Alt + E, M	Resize the selected objects to conform to the horizontal, vertical (or both) dimensions of a selected reference object.
	SELECT ALL	Alt + E, A	Select ALL the objects in the active document.
	LINKS	Alt + E, K	Display a list of the linked objects in a document. You can also change the update method (automatic or manual), update a manually linked object, cancel a link, or repair a link.
	OBJECT	Alt + E, O	Access the dialogs that let you modify the key attributes of a Field, Picture, Button, or other type of object.
	SEARCH	Alt + E, S	Search for Text Strings in a DQL Procedure.
	SEARCH & REPLACE	Alt + E, R	Search for Text Strings in a DQL Procedure, and replace them with another text string.
	NEXT	Alt + E, X F3	Search forward for each instance of a Text String in a DQL Procedure.
	PREVIOUS	Alt + E, V Shift + F3	Search backward for each instance of a Text String in a DQL Procedure.

Selecting Objects

Before you can cut, copy, move, or perform any other action to an object, you must first select it. DataEase offers four methods of selecting objects: individual selection, multi-selection, marquee selection, and global selection (explained later).

How to Select an Object

1. Click on the object. DataEase displays eight handles to indicate it is selected.
2. To select more than one object at the same time, hold down shift and click on each object. DataEase displays handles on the objects you select. To deselect an object, hold down Shift and click on the object again.
3. To select objects using the marquee, position the cursor outside the top left corner of the object(s), click on and hold the left mouse button, and drag the mouse to enclose all the objects you want to select. The marquee must surround the entire object or all the objects. When you release the mouse button, DataEase displays handles on all the objects to indicate they are selected.



Correcting a Mistake

When you choose **Edit>>Undo**, DataEase reverses most commands. The menu option's name changes to reflect your last action (e.g. Edit-Undo Paste). However, **Edit>>Undo** cannot undo a modification that has been saved to disk.

When you choose Edit-Redo, DataEase reverses the previous **Edit>>Undo**.

DataEase supports a multi-level Undo and Redo. For example, suppose you draw an ellipse, choose **Edit>>Cut**, and then draw a button. Choosing **Edit>>Undo** once removes the button, choosing **Edit>>Undo** again places the ellipse back on the layout, and choosing **Edit>>Undo** a third time removes the ellipse.

Edit>>Redo reverses a string of **Edit>>Undo** operations. The default is set at 10, but you can set the number of Undo/Redo actions at up to 90 using **Application>>Preferences**.

How to Undo and Redo an Action

1. Before saving the changes, choose **Edit>>Undo**. DataEase restores the document to the way it appeared before you performed the last action.
2. To cancel the action performed by **Edit>>Undo**, choose **Edit>>Redo**.

The screenshot shows the 'MEMBERS' form in the Club ParaDEASE application. On the left is a sidebar with the logo and 'The Antidote to Documentation'. Below the logo is a 'Member ID: MEME' field and a 'New' button. The main form area has a title bar with 'Previous' and 'Next' buttons. The form fields are: Last Name (containing 'LAST NAME'), First Name (containing 'FIRST NAME'), Initial (containing 'M'), Street (containing 'STREET'), City (containing 'CITY'), ST. (containing 'ST.'), Zip Code (containing 'ZIP CODE'), Expiration Date (containing 'EXPIRAT'), and Telephone (containing 'TELEPHONE'). A vertical line is drawn through the 'Last Name' field, indicating it is the focus of the error.

The Last Name field is accidentally moved and placed in the wrong position.

Edit>>Undo returns it to its correct position.

This screenshot shows the same 'MEMBERS' form after the 'Undo' action. The 'Last Name' field is now correctly positioned at the top of the form, above the 'First Name' field. The other fields remain in their original positions. A vertical line is drawn through the 'Last Name' field to highlight its correct placement.

Editing Objects

You can move or copy objects using the Cut, Copy and Paste commands.

When you choose **Edit>>Cut**, DataEase removes the selected object(s) from the layout and places them in the Windows clipboard.

When you choose **Edit>>Copy**, DataEase duplicates the selected object(s) and places them in the Windows clipboard.

When you select either **Edit>>Cut** or **Edit>>Copy**, DataEase inserts the clipboard's contents at the cursor's position in the active document. If multiple objects are stored on the clipboard, each object is pasted in the same relative position as it was before it was cut or copied.

When you choose **Edit>>Clear**, DataEase permanently deletes the selected object from the document. When you choose **Edit>>Clear**, DataEase does not overwrite any information that is already stored on the clipboard.

How to Paste an Object in a New Location

1. Select the object you want to cut or copy. DataEase places handles on the selected object.
2. Choose **Edit>>Cut** or **Edit>>Copy**. If you choose **Edit>>Cut**, DataEase moves the object from the document to the clipboard. If you choose **Edit>>Copy**, DataEase places a copy of the object onto the clipboard.
3. Open the document on which you want to place the object and choose **Edit>>Paste**. DataEase displays the clipboard icon, which lets you position the cursor exactly where you want to position the object.
4. Position the cursor at the top left hand corner of where you want to place the object and click the mouse. DataEase pastes the object into your document.

Linking and Embedding an Object from another Windows Program

Object Linking and Embedding (OLE) is a Windows standard that lets you connect objects created in another Windows program to a DataEase document.

Many Windows programs are available to help you create graphs, charts, drawings, work sheets and text documents. OLE lets you create an object in another Windows program and insert it into a DataEase document using the Windows clipboard.

The advantage of OLE over cut and paste is that you can modify the inserted object using the tools from the program in which the object was created without leaving DataEase. Double-click on the object in DataEase, and the source program opens, displaying the object for editing.

Object Linking lets you establish a link between a DataEase document and an object in another Windows program. When you **Link** an object, the data resides in the source document. If you want to modify this object from within DataEase, simply double-clicking on the object will open the source program, allowing you to edit the object.

If you make changes to the source document, your DataEase document can be updated automatically or manually. For example, if you link an Excel chart to a DataEase document and select **automatic update**, DataEase automatically displays any alterations made to the chart in Excel. If you select **manual update**, DataEase displays the modifications when you request an update.

Object Embedding lets you place an independent copy of an object from another Windows program into a DataEase document. Whether the original object is saved on disk or not, the copy remains embedded in the DataEase document. The data contained in the object resides in your DataEase document, and there is no link to the original source object.

From within DataEase you can modify the inserted object using the tools from the program which created it - by double-clicking on the object.

When to choose Object Linking

Choose object linking if you want to update the data in both the source and DataEase documents each time you make changes to the original - a monthly Sales Spreadsheet, say.

Remember! If you move or delete the document in which you created the linked object, the link is broken. DataEase retains a static image of the object. To repair a broken link, see the section **Editing Links**.

To insert a linked object from one DataEase document into another DataEase document, use **Edit>>Copy** and **Edit>>Paste**, not **Edit>>Paste Link**.

When to choose Object Embedding

Conversely, if you want the objects to be independent so that the source and DataEase versions of the object can be modified separately, choose object embedding. For example, you might want to use a drawing package to create a diagram which you can embed in DataEase - but you don't want to store the diagram in the drawing package. That was just a tool used to create it.

You can also link and embed objects using the OLE tool on the Object Palette. The table below summarizes how to link and embed objects, and compares the ways they are stored and updated.

OLE Object Summary

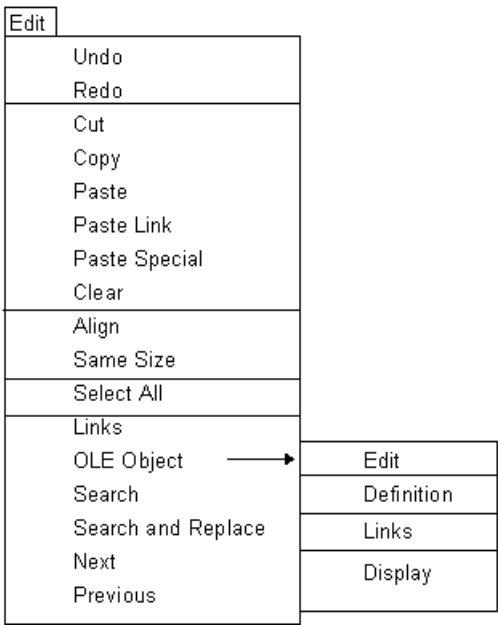
OLE Type	To Paste The Object	How DataEase Stores The object	To Modify The Data
Object Linking	Choose Edit-Paste Link or click on the Paste Link button in the Edit-Paste Special Dialog.	DataEase links the two objects. When the data is changed in the source document (and saved) the linked object in DataEase can be updated either manually or automatically.	Double-click on the object in DataEase to open the Windows program that created it. You can now modify the object using the source tools. By selecting either 'automatic' or 'manual' update, you can ensure that the object is updated whenever it is changed in the source program.
Object Embedding	Click on the Paste button in the Edit-Paste dialog.	DataEase places an independent copy of The object in the DataEase document. The embedded object is not linked to the source document, but can still be edited using the source program.	Double-click on the object in DataEase to open the Windows program that created it. You can now modify the object using the source tools.

Linking an Object to a DataEase Document

When you choose **Edit>>Paste Link**, DataEase inserts an object copied from another Windows program at the cursor's position in the DataEase document. The DataEase document and the source document are now linked.

When you establish a link, choose **Edit>>OLE Object-Definition** to specify whether you want to update the DataEase document manually or automatically. When the source document is modified, the linked object in the DataEase document is updated by the method you chose. For information on editing links, see **Editing Links**.

When you select an OLE object and choose Edit-OLE Object, the cascade menu displays several options, which will vary depending whether the object is linked or embedded and on the program in which the OLE object was created.



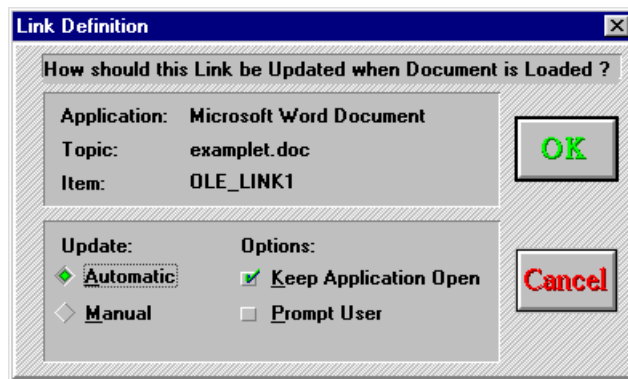
OLE Object Cascade Menu

Edit opens the Windows program that created the object so you can edit the object using the program's tools. (You can also open the Windows program by double-clicking the object).

Definition opens the Link Definition dialog shown below. This dialog lets you specify link options.

Links opens the Links dialog (explained below) which lets you view and change the method - automatic or manual - by which a link is updated.

Display opens the Display Attributes dialog, which lets you modify the display attributes of an object.



Link Definition Dialog Options

Application automatically displays the name of the Windows program in which the object was created.

Topic automatically displays the filename of the object in the original Windows program

Item automatically displays code that identifies the portion of the file that is on the clipboard.

Update lets you choose whether to update the object automatically or manually.

- **Automatic** instructs DataEase to automatically display changes in the linked object each time the document is opened in DataEase. DataEase automatically displays modifications made to the object in the source document while DataEase is running.
- **Manual** instructs DataEase to update the linked object when you click on Update Now in the Links dialog.

Options provides two additional Linking options.

- **Keep Application Open** instructs DataEase to run the Windows program that created the object while the DataEase document that displays the linked object is running.
- **Prompt User** instructs DataEase to prompt you to update the object. When Prompt User is selected, the Link Update dialog opens immediately when you open the document. The dialog instructs you to click OK to update the link. If you click Cancel instead, the link is not updated.

How to Link an Object from Another Windows Application to a DataEase Document

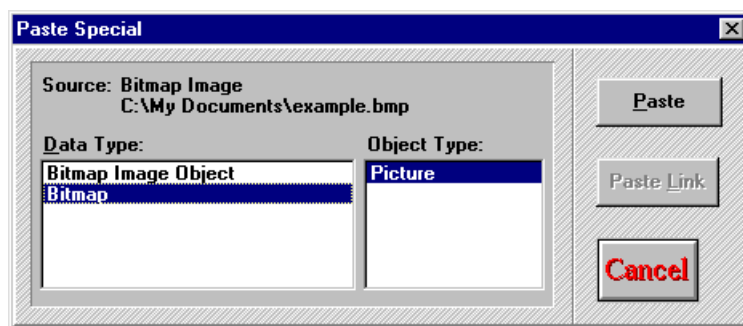
1. Open the Windows program in which the object you want to copy resides. Select the data you want to insert into a DataEase document.
2. Copy the data using the other Windows program's **Copy** command.
3. Open the target DataEase document and switch to Designer View. Choose **Edit>>Paste Link**. DataEase displays the clipboard icon. Use the icon to draw a rectangle in the DataEase document at the location where you want to display the linked object. When you release the mouse button, the linked object appears within the rectangle.
4. The DataEase default for linked objects is automatic update. To designate a manual update, select the object and choose **Edit>>OLE-Object-Definition**. DataEase displays the Links dialog. Choose manual. Click OK to close the dialog.
5. When you want to edit the inserted object, double-click on the object in DataEase to open the program in which the object was created. You can modify the object using the source program's tools.

Note: If the Update is set to Automatic, DataEase displays the modified data immediately.

If the Update is set to Manual, choose **Edit>>OLE Object-Links**. DataEase displays the Links dialog. Choose Update Now, and click OK to close the dialog. DataEase displays the modified object.

Pasting an Object in a Selected Data Format into a DataEase Document

When you choose **Edit>>Paste Special**, DataEase opens the Paste Special dialog, which lets you paste an object from another Windows application into a DataEase document. Choose this option when you want to use a format other than the default provided by the Paste and Paste Link options on the Edit menu. For example, choose **Edit>>Paste Special** to paste a paintbrush image as a bitmap.



Paste Special Dialog Options

Source displays the following information about the data stored on the clipboard.

- The software used to create the object.
- The name of the source file
- The portion of the file that is on the clipboard.

Data Type displays a list of the Windows data formats for the object stored in the Windows clipboard. The formats available depend on the software used to create the Clipboard's contents.

Object Type displays the DataEase format corresponding to the selected Data Type. For example, when you select Paintbrush bitmap in the Data Type list box, DataEase displays Picture as the Object Type. But when you select Paintbrush Picture Object in the Data Type list box, DataEase displays OLE as the Object Type.

Paste translates the data stored on the clipboard into the format you select in the Data Type list box, and inserts the object into the document *without establishing a dynamic link to the original data source*. The object you paste into DataEase does **not** change when the data in the original document changes.

Paste Link is enabled only when the Object Type is OLE. Click on the Data Type corresponding to the OLE Object Type.

Paste Link translates the data stored on the clipboard into the OLE format, inserts the object into the document, and *establishes a dynamic link to the original data source*. When the data in the original document is modified, the object in the DataEase document can be updated manually or automatically to reflect these changes.

Do not use **Edit>>Paste Link** to insert a linked object that appears in one DataEase document into another DataEase document. Use **Edit>>Copy** and **Edit>>Paste** instead. For example, to display a Microsoft Excel chart that is linked to a DataEase form into a report, choose **Edit>>Copy** and then **Edit>>Paste** to insert the chart into the report.

How to Paste an Object in a Selected Data Format into a DataEase Document

1. Open the Windows program in which the object you want to copy resides. Select the data you want to insert into a DataEase document.
2. Copy the data using the other Windows program's **Copy** command.
3. Open the target DataEase document. Choose **Edit>>Paste>>Special**. DataEase opens the Paste Special dialog.
4. Select the Data Type that corresponds to the data format you want to use. DataEase displays the corresponding data format in the Object Type list box.
5. To insert the data as a new object, choose:

Paste to insert the data into the DataEase document exactly as the data appears in the source file at the time you copied it. The object does not change when the data in the source document changes.

Paste Link to link the data in the DataEase document with the original document. This object can be updated manually or automatically when the data in the original document changes.

Aligning Objects

When you choose **Edit>>Align**, DataEase displays the cascade menu shown below.

Use the Align cascade menu options to specify how you want to align several objects in relation to a reference object. The reference object is the last object you select. DataEase highlights it with solid handles.

Edit	
Undo	
Redo	
Cut	
Copy	
Paste	
Paste Link	
Paste Special	
Clear	
Align	→ Right Edges
Same Size	Left Edges
Select All	Horizontal Centre
Links	Top Edges
Object	Bottom Edges
Search	Vertical Centre
Search and Replace	To Grid
Next	
Previous	

Align Cascade Menu Options

Right Edges lines up the right edges of the selected objects with the reference object.

Left Edges lines up the left edges of the selected objects with the reference object

Horizontal Center lines up the horizontal centers of the selected objects with the horizontal center of the reference object.

Top Edges lines up the top edges of the selected objects with the top edge of the reference object.

Bottom Edges lines up the bottom edges of the selected objects with the bottom edge of the reference object.

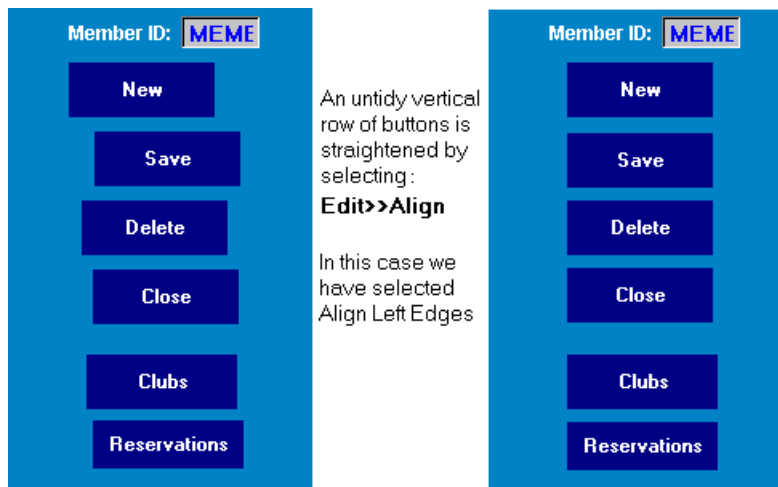
Vertical Center lines up the vertical centers of the selected objects with the vertical center of the reference object.

To Grid places the upper left-hand corner of each selected object on the nearest grid coordinate.

Note: In the Top Edges, Bottom Edges, and Vertical Center options, some objects may be partially obscured by others, because DataEase align one plane at a time. One object can not push another object out of the way.

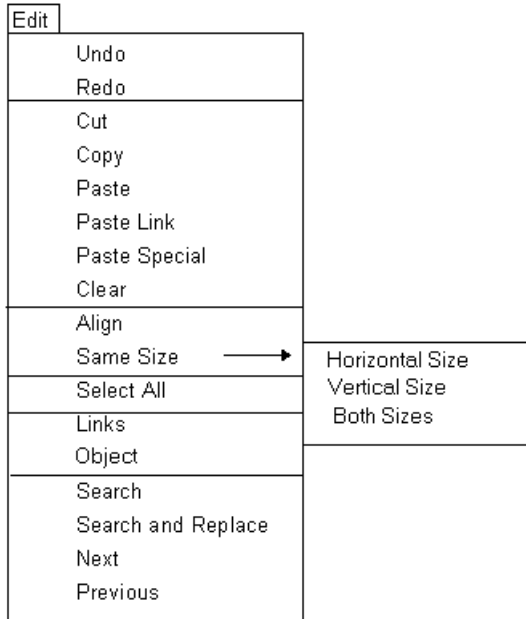
How to Align Objects

1. Holding down the Shift key, select the objects you want to align. Select the object on which you want the alignment to be based (i.e. the reference object) last.
2. Choose Edit-Align and choose an alignment option from the cascade menu. DataEase aligns the selected objects with the reference object.



Making Objects the Same Size

When you choose **Edit>>Same Size**, DataEase displays the cascade menu shown below. Use the choices on the cascade menu to resize a group of objects to the size of a reference object. The reference object is the last object in the group that you select.



Same Size Cascade Menu

Horizontal Size resizes the selected objects so that their widths are identical to the reference object's.

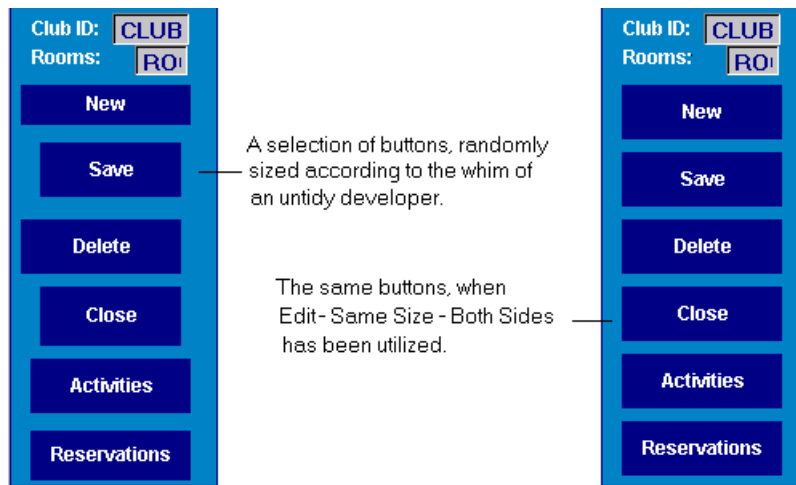
Vertical Size resizes the selected objects so that their heights are identical to the reference object's.

Both Sizes resizes the selected objects so that both their heights and their widths are the same size as the reference object's.

Note: If a Text Object's size is changed, the font size remains the same. The area enclosed by the handles expands or shrinks with the object.

How to make Several Objects a Uniform Size

1. Select the objects you want to resize, selecting **last** the object on which you want the resizing based (i.e. the reference object).
2. Choose **Edit>>Same Size** and choose a sizing option from the cascade menu. DataEase resizes the selected objects to conform to the horizontal or vertical dimensions (or both) of the reference object.



Selecting All Objects in a Document

When you choose Edit-Select All, DataEase highlights all the objects (except Form and Record Objects) in the current document. You can then simultaneously cut, copy, or delete all the selected objects.

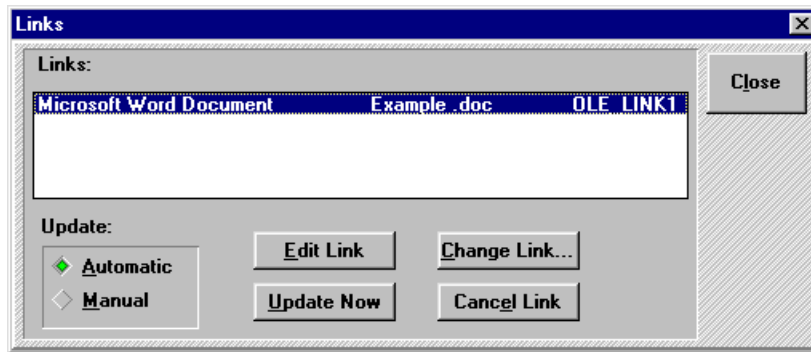
How to Select All or Most Objects

1. Open the document containing the objects you wish to select, and choose Edit-Select All. DataEase displays handles on every object in the document.
2. If you don't want to select one of these objects, simply press Ctrl and click on the object. It is then deselected.

Editing Links

When you choose **Edit>>Links**, DataEase displays the Links dialog, which lets you view or change the method (automatic or manual) of updating a link. You can also update a manually linked object, cancel a link, or repair an active link.

This option is not enabled until an object created in another Windows program is copied to the clipboard.



Links Dialog Options

Links lists the OLE connections to the active document. Each row indicates one link's source application (e.g. Word), filename (e.g. Example.DOC), and link update method (automatic or manual).

Update tells DataEase which method to use when updating links. When you choose an option, the update method changes for the link that is highlighted. Choose:

- **Automatic** to update link information displayed in DataEase whenever the source file is changed.
- **Manual** to update the information only when you click the 'Update Now' button, in the Links dialog.

Update Now lets you update information used for all highlighted links with current data from the source file. This option is only relevant when 'Manual' has been selected as the update type.

Cancel Link lets you permanently break the connection currently highlighted in the Links list box. The link itself is removed from the Links list box and the linked object is changed to a static picture that cannot be updated.

Edit Link opens the Windows application that was used to create the object. Clicking the Edit Link button is the same as double-clicking an OLE object.

Change Link opens the Change Link dialog, which lets you repair a broken link when DataEase cannot find the source file (e.g. if the source file has been moved or has had a name change).

Change Link Dialog Options

File Name lets you assign a new filename for the linked object.

List Files of Type lets you choose the type of file - such as Bitmap.

Directories lets you select the directory in which to store the linked object. To select a directory, double-click on the name of the directory.

Drives lets you select the drive that stores your application. To select a drive, click on the drop-down arrow, and then on a drive letter in the drop-down menu list box.

How to Change the Update Method for a Link

1. Choose **Edit>>Links**. DataEase opens the Links dialog.
2. Click on the link that you wish to change. DataEase highlights the selected link.
3. Choose the update method
4. **Automatic** to update the link information displayed in DataEase whenever a change is made to the source file.
5. **Manual** to update the information only when you click the Update Now button in the Links dialog.
6. Click OK to close the dialog.

How to Update a Manual Link

1. Choose **Edit>>Links**. DataEase opens the Links dialog.
2. Click on the link that you wish to change. DataEase highlights the selected link
3. Click on the Update Now button. DataEase updates information for the selected link using the current data from the source file selected.
4. Click OK to close the dialog.

How to Break a Link

1. Choose **Edit>>Links**. DataEase opens the Links dialog.
2. Click on the link that you wish to change. DataEase highlights the selected link.
3. Click on the Cancel Link button. DataEase removes the selected link from the Links list box, permanently breaks the OLE connection to the original file, and changes the linked object in the DataEase document to a picture.
4. Click OK to close the dialog.

How to Restore a Broken Link

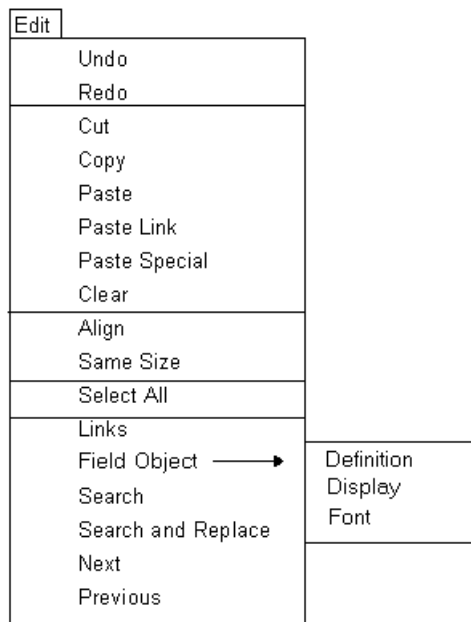
1. Choose **Edit>>Links**. DataEase opens the Links dialog.
2. Click on the link that you wish to change. DataEase highlights the selected link
3. Click the Change Link button. DataEase opens the Change Link dialog.
4. Choose the drive, directory, and type of file. Enter the filename of the file that contains the linked information.
5. Click OK to close the dialog.

Modifying Key Attributes of Objects

When you choose **Edit>>Object**, DataEase opens a cascade menu similar to the one shown below. The Object cascade menu options open the dialogs that let you modify the key attributes of a Form, Record, Field, or any other object.

When you select an object in the Document, DataEase inserts the name of the type of object before Object in the Edit menu. For example, if you click on a field in the document and then open the Edit menu, **Field Object** appears on the menu. The options the cascade menu displays vary according to the selected object.

Choosing **Edit>>Object** is equivalent to selecting an object and clicking on the right mouse button.



Searching for Text Strings in a DQL procedure

The four options in the last group on the Edit Menu let you search for a specific text string. These options are available only when you are viewing a DQL Procedure.

When you choose **Edit>>Search**, DataEase opens the Search dialog, which lets you search for a specific text string in a DQL script.

When you choose **Edit>>Search and Replace**, DataEase opens the Search and Replace dialog, which lets you search for a specific text string in a DQL script and replace each instance of that string with another text string.

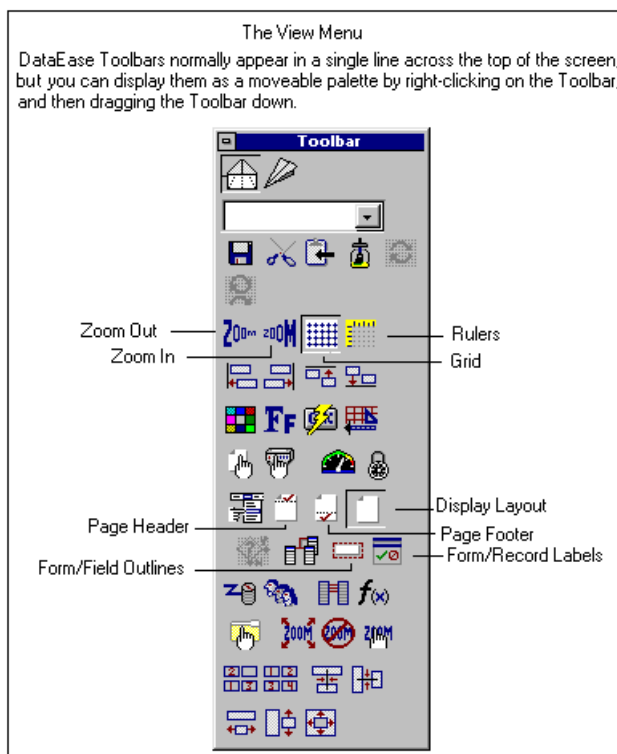
When you choose **Edit>>Next**, DataEase searches forward to find each instance of the specified text string that occurs between the current cursor location and the end of the script.

When you choose **Edit>>Previous**, DataEase searches backward to find each instance of the specified text string that occurs between the current cursor location and the beginning of the script.

Chapter 5 : The View Menu

The options on the View menu are used to display various parts of a document, show or hide the Rulers, Grid, Toolbar, Status Bar, Object Palette, Application Catalog, and the commands that DataEase sends to an SQL database engine in a Client-server environment.

Four options on the View Menu - **Zoom Out**, **Zoom in**, **Grid** and **Rulers** - have a corresponding button on the designer Toolbar that executes the same action.



Each menu option is summarized in the table below, and explained in detail on the following pages.

Menu Option	Keyboard Equivalent	Menu Option is used to
Body	Alt + V, D	Display the main body of a document (excluding the Information that appears in the Page and Summary Headers or Page and Summary Footers.
Page Header	Alt + V, H	Create or display information that appears in the top of each Page when the document is printed or sent to screen. Information in the Page Header is generated from Summary and Application variables.
Page Footer	Alt + V, F	Create or display the information that appears at the bottom of each Page when a document is printed or Sent to screen. Information in the Page Footer is Generated from Summary or Application variables.
Summary Header	Alt + V, A	Display system-generated information and summary statistics at the top of each Page, below the Page Header. Information in the Page Header is generated from Summary and Application variables
Summary Footer	Alt + V, M	Display system-generated information and summary statistics at the bottom of each Page, above the Page Footer. Information in the Page Header is generated from Summary and Application variables

Status Bar	Alt + V, S	Display or hide the Status Bar in the bottom of the active window.
Catalog	Alt + V, C	Display the Application Catalog Window, which lists all the foreign databases, tables, and documents in an application.
Generated SQL	Alt + V, N	Display the SQL Statements DataEase generates in a Client-server environment.

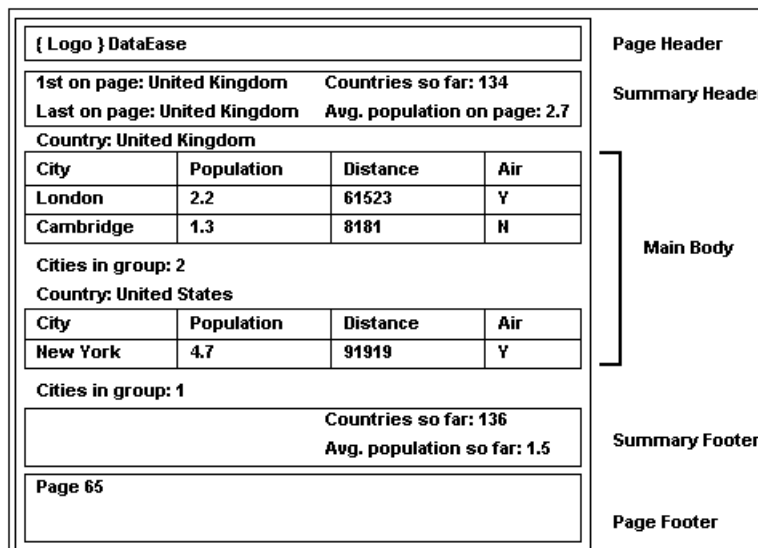
Data-Entry Form	Alt + V, E	Display the Document's Data-Entry Form, which lets you specify selection criteria to be used at the start of A DQL procedure.
Procedure	Alt + V, P	Display the Script Editor, which lets you create a DQL Procedure.
Form/Field Outlines	Alt + V, O	Highlight the outline of Form, Record, and Field objects that have no discernible border, so you can More easily select them.
Form/Record Labels	Alt + V, B	Display a label at the top of each Form, Subform, or Record object that contains the object's name.
Rulers	Alt + V, R	Display rulers along the top and left sides of the active window, to help you position objects in a document.
Grid	Alt + V, G Ctrl + G	Display the alignment Grid, which lets you accurately place objects in a document.
Grid/Ruler Options	Alt + V, T	Set the unit of measurement for the rulers and grid, turn rulers on or off individually, set the grid Spacing, and choose a line or dot grid style.
Zoom	Alt + V, Z	Open the Zoom cascade menu, which lets you choose options for enlarging or reducing your view of a document.
Toolbar	Alt + V, L	Display or hide the Toolbar.
Object Palette	Alt + V, J	Display or hide the Object Palette.

Viewing Parts of a Document

A printed DataEase document can have five components, which are depicted in the diagram below. To edit or add and delete objects, you must access each component separately through the View menu, or the Header/Footer/Display Area icons. The components, in the order they appear on a page, are:

- Page Header
- Summary Header
- Body
- Summary Footer
- Page Footer

Each component is described in more detail on the following pages.



Viewing the Body of a Document

When you choose **View>>Body**, DataEase displays the main body of the document you are editing. You can use the Objects menu or the Object Palette to insert text or objects that you want to appear in the main body of your document.

The screenshot shows the DataEase application window with the menu bar (File, Edit, View, Objects, Document, Application, Window, Help) and a toolbar. The main form is titled 'MEMBERS Main form' and contains a table with the following structure:

MEMBER ID	LAST NAME	FIRST NAME
MEMBERS Record		
MEMBER ID	LAST NAME	FIRST NAME
FAMILY MEMBERS Subform		
FIRST NAME	DATE OF BIRTH	
FAMILY MEMBERS Record		
FIRST NAME	DATE OF BIRTH	

Creating and Modifying Page Headers and Page Footers

When you choose **View>>Page Headers**, DataEase displays the Page Header. You can use the Objects menu on the Object Palette to insert text and objects that you want to repeat at the top of each page of the document. You can also insert Application variables, such as the page number, date, time, or document name, and Summary Variables, which provide statistics based on the data printed in the body of the document.

When the body of a document horizontally spans multiple physical pages (such as a spreadsheet that horizontally spans several pages), the Page Header is limited to the width of a physical page and is duplicated at the top of each printed page of the horizontal scan. If you choose to insert page numbers, they print 1.1, 1.2, 1.3, etc, to designate the successive portions of the horizontal span.

When you choose **View>>Page Footer**, DataEase displays the Page Footer. You can use the Objects menu on the Object Palette to insert text and objects that you want to repeat at the bottom of each page of the document. You can also insert Application variables, such as the page number, date, time, or document name, and Summary Variables, which provide statistics based on the data printed in the body of the document.

When the body of a document horizontally spans multiple physical pages (such as a spreadsheet that horizontally spans several pages), the Page Footer is limited to the width of a physical page and is duplicated at the bottom of each printed page of the horizontal scan. If you choose to insert page numbers, they print 1.1, 1.2, 1.3, etc, to designate the successive portions of the horizontal span.

Although you can add system-generated Application Variables and Summary Variables to Page Headers and Page Footers, you cannot add user-defined data fields.

Creating and Modifying Summary Headers and Summary Footers

When you choose **View>>Summary Header**, DataEase displays the Summary Header. You can use the Objects menu or the Object Palette to insert in the Summary Header text and objects that you want to appear at the top of each page, below the Page Header. You can also insert Application Variables, such as the page number, date, time, or document name, and Summary variables, which provide statistics based on the data printed in the body of the document.

When the body of a document horizontally spans multiple physical pages (such as a spreadsheet that horizontally spans several pages), objects placed in the Summary Header can also span several physical pages. The width of this span is determined by the object placed furthest to the right, up to a maximum of 39 inches.

When you choose **View>>Summary Footer**, DataEase displays the Summary Footer. You can use the Objects menu or the Object Palette to insert in the Summary Footer text and objects that you want to appear at the bottom of each page, above the Page Footer. You can also insert Application Variables and Summary Variables.

When the body of a document horizontally spans multiple physical pages (such as a spreadsheet that horizontally spans several pages), the Summary Footer behaves in exactly the same way as the Summary Header.

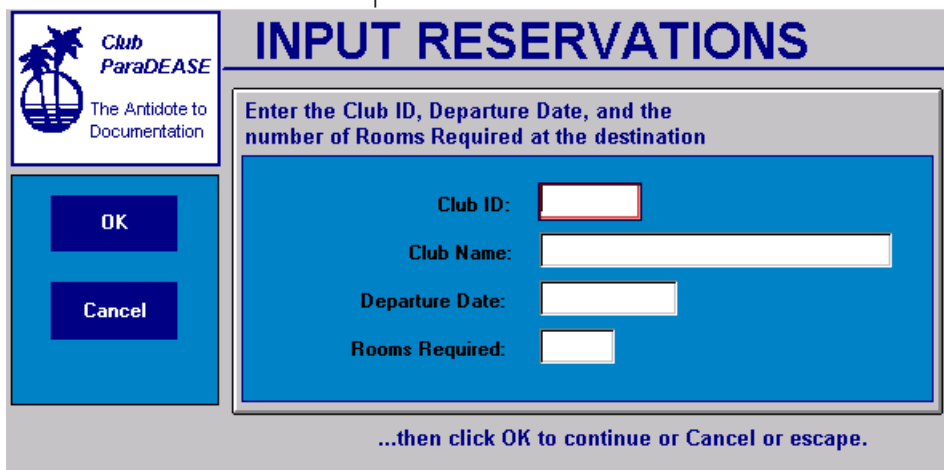
Although you can add system-generated Application Variables and Summary Variables to Summary Headers and Summary Footers, you cannot add user-defined data fields.

Viewing the Data-Entry Form

When you choose **View>>Data>>Entry Form**, DataEase displays the document's data-entry form, which lets you specify the selection criteria and other information used in a DQL procedure.

If a DQL procedure is associated with a Data-entry form, DataEase displays the form the first time you run the DQL procedure. You can create only one Data-entry form for each DQL procedure. If you tell DataEase to display the Data-entry form after the DQL procedure is executed, you can run the same DQL procedure over and over again, using different data each time.

This Data-entry form lets you specify the CLUB ID, DEPARTURE DATE, CLUB NAME and ROOMS REQUIRED, allowing the DQL procedure to run against the specific data which is of interest to you.



Club ParaDEASE
The Antidote to Documentation

INPUT RESERVATIONS

Enter the Club ID, Departure Date, and the number of Rooms Required at the destination

Club ID:

Club Name:

Departure Date:

Rooms Required:

OK

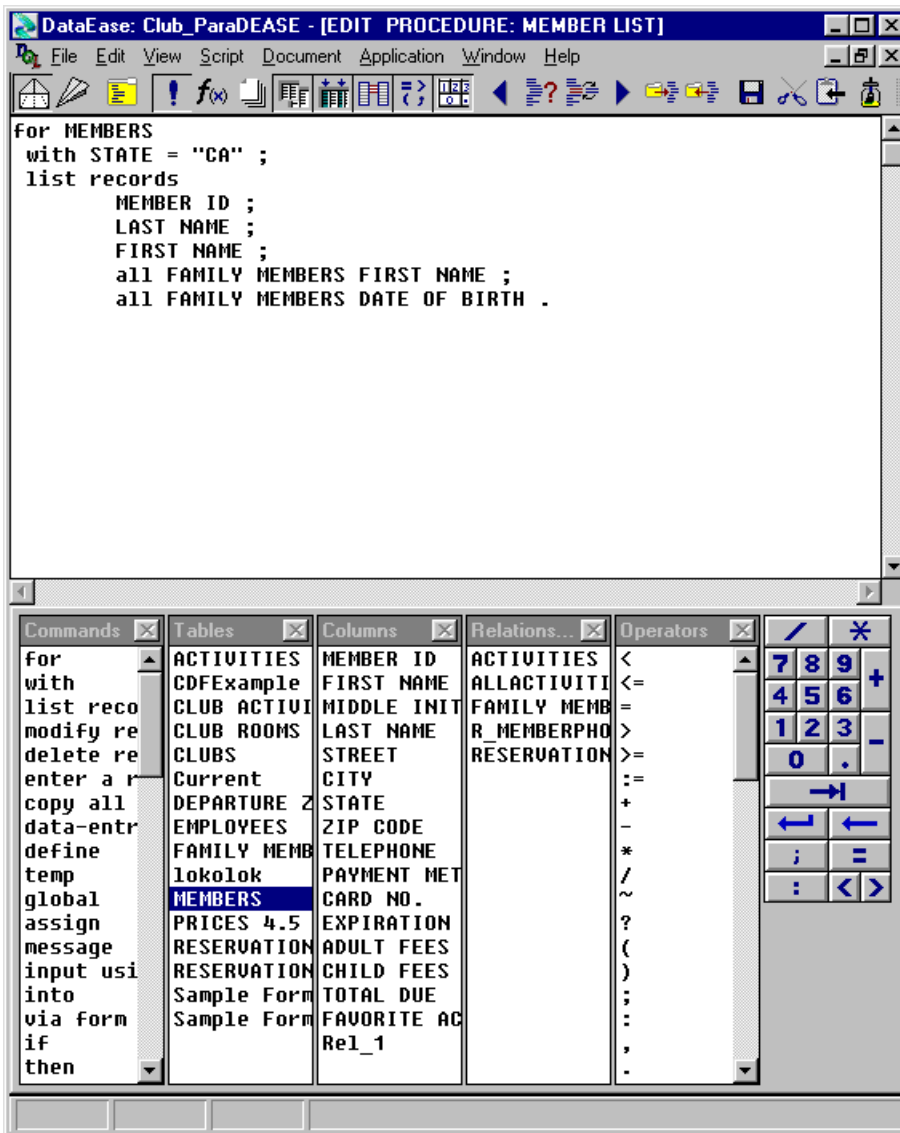
Cancel

...then click OK to continue or Cancel or escape.

Note: The Data-entry form is a special type of form that lets you enter varying information each time you run a DQL procedure. Do not confuse the Data-entry form with a DataEase Record Entry form, which is used to enter data into the records of a database table. DQL procedures are the only documents that can be associated with a Data-entry form.

Viewing the DQL Script Editor

When you choose View-Procedure, DataEase displays the DQL Script Editor, which lets you create or modify a DQL procedure. The DQL Script Editor consists of the DQL script window and interactive pick lists, which let you write a script for a DQL procedure document.



Display Hidden Outlines

When you choose View-Form/Field Outlines, DataEase highlights Form, Record, and Field objects. This option is particularly useful when the object's display attributes specify no visible border. This option lets you select, move, or resize these objects easily.

How to Display a Hidden Object's Borders

1. Choose **View>>Form/Field Outlines**.
2. DataEase displays a rectangle around each object that has no visible border. DataEase outlines borderless objects using the line color specified in the Display Attributes box.

The RESERVATION form has two hidden fields - PRICE and SEASON - which are difficult to see even in Designer View. Turning on Form/Field Outlines makes it easy to find the hidden fields.

Displaying Form and Record Labels

When you choose **View>>Form/Record Labels**, DataEase displays a label at the top of each Form, Subform, and Record object. The label contains the object's name.

Choosing **View>>Form/Record Labels** again will turn the labels off - in other words this option toggles labels on and off.

At first sight this looks like the standard RESERVATIONS form from Club ParaDEASE.
....but notice that there are LABELS printed at the top of the FORM, RECORD, and Subform.

The screenshot shows a complex form interface for Club ParaDEASE. The main form is titled 'RESERVATIONS' and has a 'Previous' and 'Next' button. It contains fields for Member ID (MEME), Date (DATE), Last Name (LAST NAME), First Name (FIRST NAME), Street (STREET), City (CITY), State (ST), Zip Code (ZIP CODE), Club ID (CLUB), Club Name (CLUB NAME), Club Location (CLUB LOCATION), Rooms Required (Required), Departure City (DEPARTURE CITY), Departure Zone (DE), and Departure Date (DEPART). There is a sidebar with buttons for New, Save, Delete, Close, Members, and Clubs. A subform titled 'Reservation Detail' is also visible, showing a table with columns for First Name, Last Name, Age, and Price. The table has a header row and five data rows. The subform is labeled 'RESERVATION DETAIL Subform' and 'RESERVATION DETAIL Record'. The main form is labeled 'RESERVATIONS Main form' and 'RESERVATIONS Record'. The subform is labeled 'Reservation Detail' and 'Reservation Price'.

RESERVATIONS Main form
RESERVATIONS Record

Club ParaDEASE
The Antidote to Documentation

RESERVATIONS

Previous Next

Member ID: MEME Date: DATE

Last Name: LAST NAME First Name: FIRST NAME

Street: STREET

City: CITY State: ST Zip Code: ZIP CODE

Club ID: CLUB Departure City: DEPARTURE CITY

Club Name: CLUB NAME Departure Zone: DE

Club Location: CLUB LOCATION Departure Date: DEPART

Rooms Required: Required

Reservation ID RESEI

New

Save

Delete

Close

Members

Clubs

Reservation Detail

RESERVATION DETAIL Subform

First Name	Last Name	Age	Price
FIRST NAME	LAST NAME	AGE ST/	RESEI
2			
3			
4			
5			

RESERVATION DETAIL Record

Reservation Price

Total Adult Price: TOTAL

Total Child Price: TOTAL

Total Due: TOTAL

How to Show or Hide Form/Record Labels

1. When the **Form/Record Labels** are not displayed, choose View-Form/Record Labels. DataEase displays labels at the top of each Form, Record, and Subform.
2. To hide the Form/Record Labels, choose **View>>Form/Record Labels**. DataEase removes the displayed labels.

Displaying Rulers

When you choose **View>>Rulers**, DataEase displays the rulers at the top and left edges of the active window. DataEase only displays the rulers in Designer View.

Choosing **View>>Rulers** again will hide the rulers.

The usual RESERVATIONS form from Club ParaDEASE. But notice that there are now Rulers at the left edge and top edge of the form. These rulers make it easier to line up objects neatly, when designing a form.

The screenshot shows a form titled "RESERVATIONS" with a logo for "Club ParaDEASE" on the left. The form has a blue header bar with the title and two buttons: "Previous" and "Next". Below the header, there are several input fields for reservation details. The form is surrounded by a ruler on the top and left edges, indicating it is in Designer View.

Member ID: <input type="text" value="MEME"/> Date: <input type="text" value="DATE"/>	
Last Name: <input type="text" value="LAST NAME"/>	First Name: <input type="text" value="FIRST NAME"/>
Street: <input type="text" value="STREET"/>	
City: <input type="text" value="CITY"/>	State: <input type="text" value="ST."/> Zip Code: <input type="text" value="ZIP CODE"/>
Club ID: <input type="text" value="CLUB"/>	Departure City: <input type="text" value="DEPARTURE CITY"/>
Club Name: <input type="text" value="CLUB NAME"/>	Departure Zone: <input type="text" value="DEPARTURE ZONE"/>

On the left side of the form, there is a sidebar with the "Club ParaDEASE" logo and the text "The Antidote to Documentation". Below this, there is a "Reservation ID" field with the value "RESEI" and a "New" button.

Displaying the Grid

When you choose **View>>Grid**, DataEase displays the alignment grid. DataEase only displays the grid in Designer View, since the purpose of the grid is to help a designer place objects on a form.

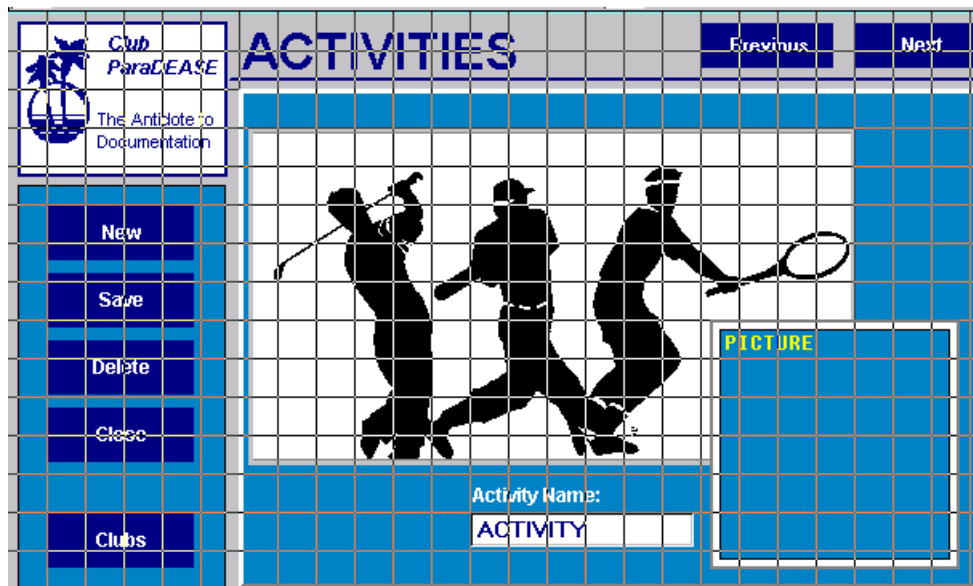
Choose **View>>Grid** again to remove the grid - it toggles on and off.

- The grid helps you accurately align objects in a document layout. You can align objects to the grid in the following ways.
- When you turn on the grid without using Snap to Grid, you can manually align an object to the grid coordinates - just by picking it up and moving it.
- When you turn on Snap to Grid using **View>>Grid /Ruler Options**, each object you create, resize or move is automatically aligned with the nearest grid coordinate.
- When you select an object and choose **Edit>>Align>>to Grid**, DataEase aligns the object(s) with the nearest grid coordinate(s) whether the grid is displayed on screen or not.

How to Show or Hide the Grid

1. When the grid is not displayed, choose **View-Grid**. DataEase displays the grid in the active window as a pattern of dots or lines.
2. To hide the grid, choose View-Grid again.

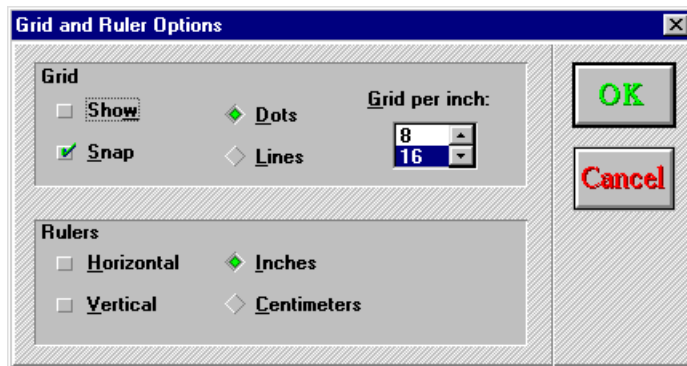
A form displayed with the 'grid' on. You can choose how many lines-to-the inch you want displayed.



Changing the Settings on the Grid and Ruler

When you choose View-Grid/Ruler Options, DataEase opens the dialog shown below. Use the Grid and Ruler Options dialog to:

- Change the unit of measurement for the rulers and grid (inches or centimeters).
- Individually turn the rulers on and off.
- Choose the type of grid you prefer - lines or dots.
- Set the density of the grid lines.



Grid and Ruler Options Dialog Options

Grid Options set preferences for the grid.

- **Show** displays the grid when checked and removes the grid when unchecked.
- **Snap** turns on the Snap-to-grid feature that forces the top left hand corner of an object to align with the nearest grid coordinate.
- **Dots** and **Lines** let you select a grid pattern of either dots or lines.
- **Grids per inch** (cm) displays the number of grid increments per inch or centimeter. The number can range from 1- 32 per inch, or 1 - 20 per centimeter.

Ruler Options set preferences for the Rulers.

- Horizontal displays a ruler along the top of the active window when checked, and removes the ruler when unchecked.
- Vertical displays a ruler along the left edge of the active window when checked, and removes the ruler when unchecked.
- Inches and Centimeters allows you to select the unit of measurement for the rulers and the grid.

How to change the Ruler Settings

1. Choose **View>>Grid/Ruler** Options.
2. Click on the desired unit of measurement.
3. To turn the rulers on or off individually, click on the Vertical and Horizontal check boxes.
4. Click OK.

How to change the Grid Settings

1. Choose **View>>Grid/Ruler** Options.
2. To set the grid density, click on the up or down arrows under grids per inch (or grids per cm) until the desired spacing is achieved. The more grids per inch, the denser the lines will appear. Denser grids allow more precision, but they also make the form less easy to read.
3. To select a grid style, click on Dots or Lines.
4. Click OK.

Enlarging or Reducing the Window View

When you choose **View>>Zoom**, DataEase lets you magnify or reduce your view of the document in the active window.

The Zoom option lets you control the appearance of the document on the screen. To get a closer look at one particular area in a document, you can zoom in on or enlarge your view of the document on the screen. To get an overview of a document, you can zoom out (reduce your view) of the document. Use the zoom options to:

- View and/or edit small text.
- Select, align, and move objects in a document.
- Print an enlarged or reduced area of a document.
- View a multiscreen document on one screen.

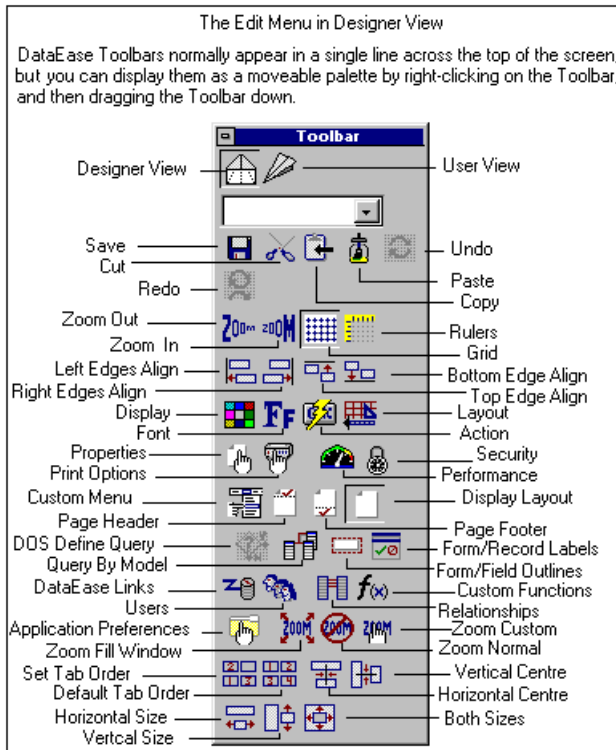
DataEase displays the current zoom percentage beside the word zoom on the View menu. DataEase also displays the percentage in the Tile Bar of the active window. If you maximize a document, the Title Bar is not visible.

DataEase accurately displays documents in their original size (100%). If you reduce or magnify your view, DataEase may distort your view of the document. For instance, if you use non-scalable fonts in your documents, you may be unable to read the letters when you reduce the document to a smaller percentage of its original size.

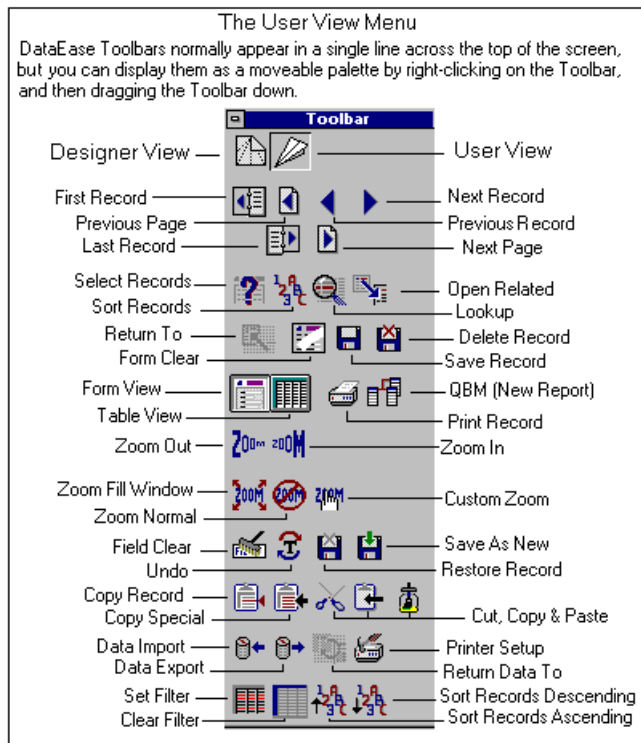
Displaying the Toolbar: Designer View

When you choose **View>>Toolbar**, DataEase displays the Toolbar - the row of icon buttons across the top of the screen, just below the menu bar. The Toolbar gives you quick access to frequently used commands.

To hide the Toolbar, choose **View>>Toolbar** again.



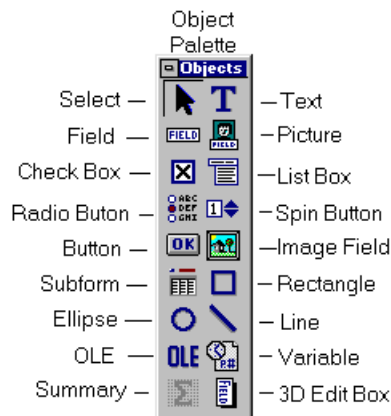
Displaying the Toolbar: User View



Displaying the Object Palette

When you choose **View>>Object Palette**, DataEase displays the Object palette, which contains a button for each object on the objects menu. Use the Object Palette to quickly add an object such as a field, button, or image, to a document.

To hide the Object Palette, choose **View>>Object Palette** again.



Displaying the Status Bar

When you choose **View>>Status Bar**, DataEase displays the Status Bar at the bottom of the Application window. The Status Bar provided information about the system (such as whether the Insert, Num Lock, and Caps Lock keys are active), or about the currently selected object (such as its length, width, and location).

FORM : FAMILY MEMBERS

Club ParaDEASE
The Antidote to Documentation

FAMILY MEMBERS Previous Next

Member ID: 00002 Individual ID: 02

Last Name: Perrault First Name: Patricia

Street: 38 Whitney Avenue

City/State: Essex CT Zip Code: 06426-0000

Telephone: (203)448-5821

Date of Birth: 07/22/75 Age Status: ADULT Adult Check: 1 Child Check: 0

On 4 In FAMILY MEMBERS CAPS NUM

The Status Bar, here showing that we are in Record 4 in FAMILY MEMBERS

Note that the CAPS and NUM locks are on.

Viewing the Application Catalog

When you choose **View>>Catalog**, DataEase displays the Application Catalog Window, shown below.

The Application Catalog lists all the tables, documents, and foreign databases in an application. DataEase automatically updates the Application Catalog when you add, rename, or delete documents and database links.

Tables		MODIFIED	BY
Menus			
MAIN MENU		04/20/95	
Sample Menu 1		02/10/95	
Forms			
ACTIVITIES	PRIMARY TABLE ACTIVITIES	09/22/99	BY
CDFExample	CDFExample	10/21/99	
CLUB ACTIVITIES	CLUB ACTIVITIES	04/20/95	
CLUB ROOMS	CLUB ROOMS	10/22/99	
CLUBS	CLUBS	04/20/95	
DEPARTURE ZONES	DEPARTURE ZONES	02/09/95	
DISCOVERIES	CLUBS	09/19/99	
EMPLOYEES	EMPLOYEES	02/09/95	
FAMILY MEMBERS	FAMILY MEMBERS	02/09/95	
MEMBERS	MEMBERS	10/17/99	
PRICES 4.5	PRICES 4.5	02/09/95	
RESERVATION DETAIL	RESERVATION DETAIL	10/17/99	
RESERVATIONS	RESERVATIONS	10/22/99	
Sample Form 1	Sample Form 1	02/09/95	
Sample Form 2	PRICES 4.5	02/09/95	
Sample Form 3	Sample Form 3	02/09/95	
Sample Form 4	CLUBS	04/20/95	
Reports			
ACTIVITY SURVEY	PRIMARY TABLE ACTIVITIES	04/20/95	BY
FAVORITE ACTIVITY	MEMBERS	04/20/95	
Sample Report 1	MEMBERS	04/20/95	
Sample Report 2	MEMBERS	04/20/95	
Sample Report 3	CLUBS	04/20/95	
Sample Report 4	RESERVATION DETAIL	02/10/95	
Procedures			
INPUT RESERVATIONS	PRIMARY TABLE Configuration	04/20/95	BY
MEMBER LIST	MEMBERS	05/15/95	

Expanding or Collapsing a Catalog List

By default, DataEase displays database names without showing the associated list of tables. To display an expanded list of the documents (i.e. forms and reports) in the application, double-click on the catalog icon displayed to the left of the database name. To collapse the expanded list, double-click on the catalog icon again.

Opening a Document from the Application Catalog

DataEase lets you open a document or table directly from the Application Catalog. To open a document or table in User View, double-click its name. To open a document or table in Designer View, highlight its name and then click the Designer View button on the Toolbar.

Viewing Status Information from the Catalog

The Application Catalog contains detailed status information you can view by enlarging the window.

For each linked database, DataEase displays the:

- Server Name or directory (with the name used to refer to the database on the server in quotes).
- Database Engine Type.

For each document, DataEase displays the:

- Name of the primary table (for a form or report only).
- Date when the document was last modified.
- Name of the user who last modified it (if the user signed on with a User Name).

Viewing the Application Catalog When in a Document

When you choose View Catalog, DataEase reduces any open document to its default size and displays the Application Catalog at the left of the screen.

When you close the Application Catalog, DataEase removes it from the screen and redisplay any hidden documents.

Displaying SQL Statements

DataEase only displays generated SQL statements when it is running in a Client-server environment. If you are not in a Client-server environment, this option is not available.

This option is inactive by default. If you want to make **View>>Generated SQL** active, check the Allow viewing of SQL text option in the Application Preferences dialog. Subsequently, when you choose View-Generated SQL, DataEase displays the SQL statements that correspond to the current operation. These statements are automatically generated by DataEase and transmitted to a SQL database engine when you run DataEase in a Client-server environment.

For example, DataEase automatically generates SQL statements when you insert, update or delete a record; search for a record; add a user; create or modify a table.

How to Display SQL Statements

1. Choose **View>>Generated SQL**. Each time you perform an action, DataEase displays the corresponding SQL command in the SQL Syntax dialog in the middle of the active window.
2. Click OK to close the SQL syntax dialog.

Chapter 6 : The Objects Menu

The options on the Objects menu are used to design the layout for a form, report, procedure, or menu document. The layout of a document tells DataEase how to display the text, graphics, and data on the screen (as in a record entry form) or printed on paper (as in a printed report).

All the objects on the Objects menu have a corresponding button on the Object Palette that executes the same action. Use the Object palette to quickly create objects such as fields, buttons, and images. The Object palette is shown below.

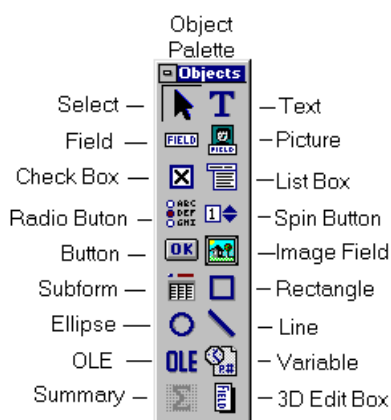
One button on the Object Palette - **Select** - is used to select, resize, and move the objects created with the Object Palette, and to display Object Definition dialogs. The Select button does not have a corresponding option on the Object menu.

Four buttons on the Designer Toolbar, **Display Attributes**, **Font**, **Action** and **Layout Options**, are used to quickly modify object attributes. They do not have corresponding options on the Object menu.

The Designer Toolbar also contains the **Object Style List**, a drop-down list of object styles. Use the Object Style list to apply a style to the currently selected object(s).



The Object Palette is shown below. **Click** on a button to see a description of its function.



How to Control the Object Palette

1. To show or hide the Object Palette, choose **View>>Object Palette**.
 2. To move the Object palette, click and hold the Object Palette's Title Bar and drag the palette to its new position.
 3. To resize the Object palette, click and hold the border of the Object palette and drag the border until the palette is the desired size.
- ..or
1. Choose **Application>>Preferences**. Specify the number of rows and columns you want to display.

What is an Object?

An object is any element in an application that displays data (e.g., a field, record, or form), has physical properties (e.g. size, shape or color), and/or functional properties (such as the ability to be moved or resized, or to execute a single command).

DataEase divides objects into two types:

- Application objects determine the way in which a user accomplishes database-related tasks. For example, a record entry form defines the way in which a user creates, modifies and deletes records in an application. An application object contains one or more document objects (see below). Application objects include forms, reports, menus, and procedures.
- Document objects define the properties of an application object when placed inside it. For example, a field placed inside a record entry form defines the type of data that a user may enter in a record. Document objects include text, fields, graphics, etc.

The figure below illustrates Application and Document objects.

The figure illustrates the structure of a DataEase application window, showing the hierarchy of objects. The main window is titled "RESERVATIONS" and contains several key components:

- Main Form (Bottom Layer):** This layer contains the overall layout, including a logo and text for "Club ParaDEASE" and "The Antidote to Documentation".
- Main Form Record (Background):** This is the background record for the main form, containing the logo and text.
- SubForm (Bottom Layer):** This layer contains a "Reservation ID" field and buttons for "New", "Save", "Delete", "Close", "Members", and "Clubs".
- SubForm Record (Background):** This is the background record for the subform, containing the "Reservation ID" field and buttons.
- RESERVATIONS Form:** This form contains fields for "Member ID", "Last Name", "First Name", "Date", "Street", "City", "State", "Zip Code", "Club ID", "Club Name", "Club Location", "Departure City", "Departure Zone", "Departure Date", and "Rooms Required".
- Reservation Detail:** This section contains a table with columns for "First Name", "Last Name", "Age", "Price", and "Reservation ID".
- Reservation Price:** This section contains fields for "Total Adult Price", "Total Child Price", and "Total Due".

Labels with arrows point to various elements in the form, including "Main Form (Bottom Layer)", "Main Form Record (Background)", "SubForm (Bottom Layer)", "SubForm Record (Background)", "Picture", "Text", "Button", "Field", and "Rectangle".

Common Document Object Operations

The operations common to all Document objects are:

- Creating Document objects
- Selecting, resizing and moving document objects.
- Cutting, copying, pasting and deleting Document objects.
- Using Object Express Menus.
- Using common Object Definition dialogs.

How to Create a Document Object

1. Choose the type of object you want to create from the Objects menu, or click on the corresponding tool in the Object palette.
2. Create a default-size object by clicking (and releasing) on the screen to mark the upper left-hand corner of the object. DataEase displays the object in its default size. By default, DataEase selects the Size to Fit option in the **Display Attributes dialog**.

....or

Create a custom-size object by clicking (and holding) to mark the upper left-hand corner of the object. Drag the mouse to the bottom right hand corner and release the mouse. By default, DataEase deselects the Size to Fit option in the Display Attributes dialog.

3. Define the object characteristics by filling in the **Object Definition dialog**.

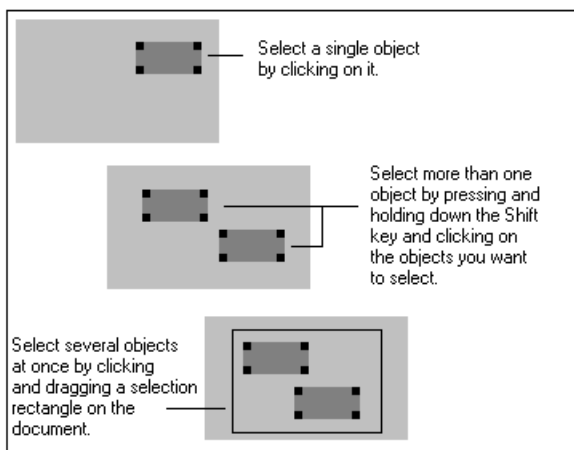
Note: When you create a form over an existing table, you do not have to include all columns in the table as fields in the new form. A form that that does not **define** a table is called a View.

Selecting, Resizing and Moving a Document Object

The following procedures describe how to use the Select Tool to select, resize, or move Document objects.

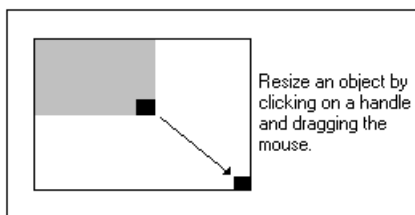
How to Select One or More Document Objects

- To select a single object, click on the object (don't click the object's edges). DataEase draws a rectangular border with handles (small black squares) around the object. Press **Tab** to select the next object on the document and deselect the current object. Press **Shift-Tab** to select the previous object.
- To select multiple objects one at a time, press and hold the Shift key. Then click on the objects you want to select.
- To select multiple objects at once, click on the form to mark the upper left-hand corner and drag the cursor to mark the bottom right hand corner of the selection area. Every object enclosed in this rectangular area will be selected.



How to Resize a Document Object

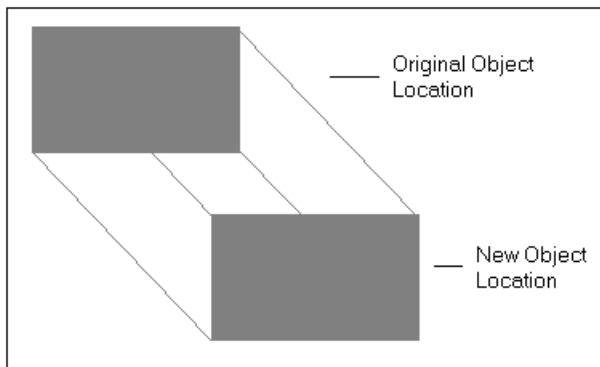
- To resize an object, click (and hold) on a handle along any edge of the object. Drag the mouse to the new position and release the mouse button.
- To resize a selected object to the next grid position, press and hold down Ctrl while pressing an arrow key (↓↑→←). For example, press Ctrl + ↓ to resize the object to the next lowest grid position.



Note: When you increase the size of any object that is nested inside another object, DataEase automatically resizes the container object to accommodate your modification. For example, if you increase the length of the rightmost field in a Subform, DataEase automatically increases the width of the Subform.

How to Move a Document Object

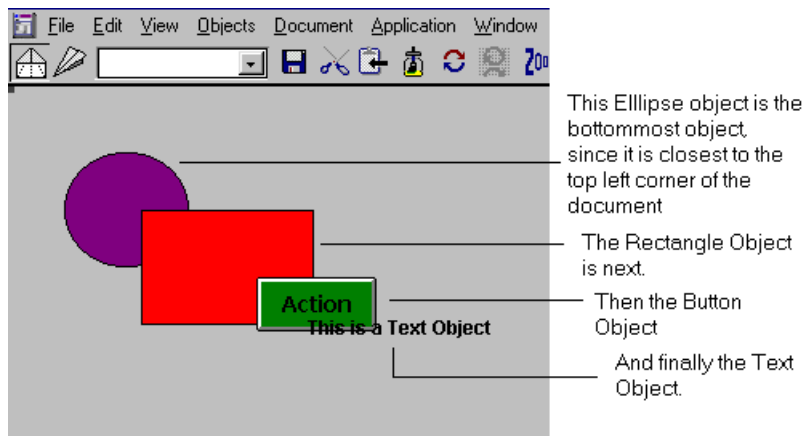
- To move an object, click on the center of the object. Drag the mouse to the new position and release the mouse button.
- To move one or more selected objects to the next Grid position, press and hold the shift key while pressing an arrow key (↓↑→←). For example, press Shift + ↑ to move the object to the next highest Grid position.



How DataEase Arranges Overlapping Objects

When two or more objects overlap, DataEase treats the object nearest the upper left corner of the document as the bottommost object. But when a Field object and another object-type overlap, the Field is always treated as the topmost object.

The default object layering is illustrated in the figure below.



How to Select an Overlapping Document Object

- To select an object located below another object, first click on the topmost object. Then press **Tab** to select the next object on the document. Press **Shift + Tab** to select the previous object.

Restrictions on Creating and Editing Document Objects

In Designer View, your ability to create or edit Document objects is restricted (see the table below). For this reason, some Edit menu options may be deactivated (grayed out) when you select a particular object. In addition, DataEase indicates that you cannot create an object in an area of a document by changing the cursor into a circle with a diagonal line through it. If you try to perform an invalid operation, DataEase displays an error message.

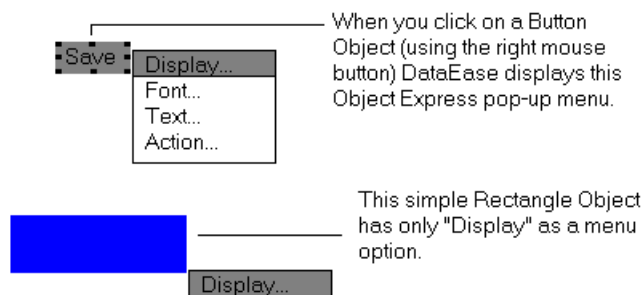
Document Object Restrictions

Object type	Object Cannot Be
Main Form/ Record	Created or deleted. DataEase automatically creates a Form and Record object when you choose File-New-Form .
Subform/ Record	<p>Created on a Form object. You can create a Subform on a Record Object only.</p> <p>Pasted after you cut or copy it. However, you can use Cut to delete a Subform.</p> <p>Created in a Header or Footer.</p>
All Other Objects	<p>Moved out of the form, Subform, or Record object in which it is initially created. However, you can cut the object and paste it on another Form or Record object.</p> <p>Created in a Header or Footer. However, Text, Graphic, Picture, Application Variable and Summary Variables are allowed to be created in a Header or Footer.</p>

Using Object Express Menus

Object Express menus are a set of special pop-up menus that provide you with a quick way to define or modify the key properties of a Form, Record, Field, or any other type of object.

To open an object's Express menu, select the object and click the right mouse button. Express menus let you access up to five of the most commonly used Object definition dialogs: **Display**, **Font**, **Action**, **Layout**, and **Definition**. The options that appear on the Express pop-up menu vary depending on the type of object selected (as shown in the figure below).



How to Open an Object Express Menu

1. Select the object.
2. Click on the right mouse button. DataEase displays the Object Express Menu. (Note that different objects have different Express Menu options).
3. Choose a menu option to open the corresponding Object Definition dialog.

Using Common Object Definition Dialogs

Each object type has one or more associated dialogs that define its attributes. DataEase provided five special dialogs that let you specify certain attributes shared by most objects.

Display Attributes Dialog lets you define a color for each part of the selected object and specify how to print the object.

Color Dialog lets you select additional colors.

Font Dialog lets you define the typographical characteristics of text in the selected object.

Action Selection Dialog lets you assign an action to the selected Button or Picture object.

Layout Options Dialog lets you arrange the layout of the selected Record, Form, or Subform object.

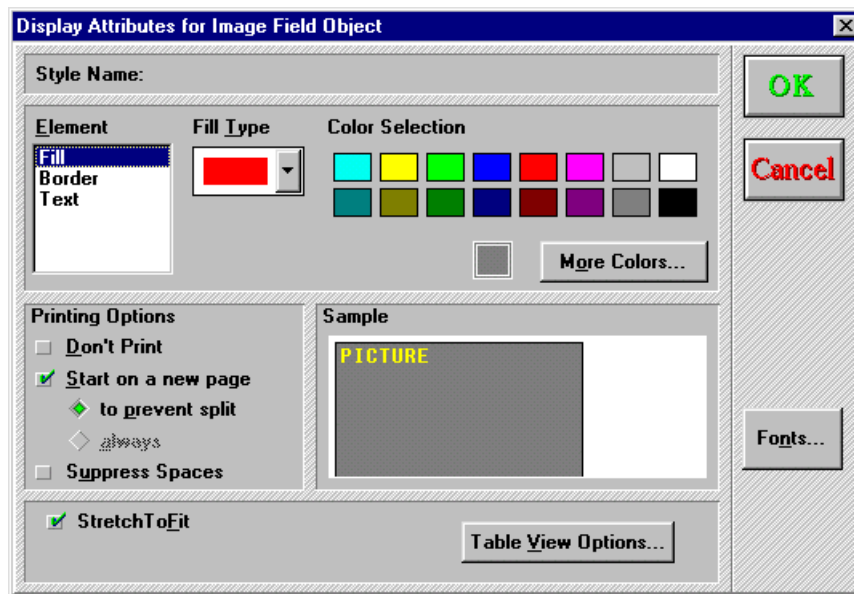
How to Open a Common Object Definition Dialog

There are three ways to open a common Object Definition Dialog.

- Select the Document object and then click on the Display Attributes, Font, Action, or Layout Options button on the Toolbar, to open the corresponding dialog.
- Double-click on the Document object and then click on the corresponding button in the object-specific dialog DataEase displays.
- Select the Document object and then click the right mouse button to display the Object Express menu. Click on a menu option to open the corresponding Object Definition dialog.

Display Attributes Dialog Options

The Display Attributes dialog lets you control key attributes of the selected object, including its color scheme, size, and hard-copy print options.



Element lets you choose which part of the selected object to adjust, e.g. Fill (interior), Line (outline), or Text.

Fill Type lets you choose the interior pattern for the object.

Color Selection lets you choose the color of each part of the selected object.

More Colors opens the Color dialog (explained on the next page), which lets you select additional colors from the Basic Colors Palette, and define your own colors.

Printing Options tells DataEase how to print the object. By default, DataEase prints the object as it appears on the screen. Choose:

- **Don't Print** to not print the object.
- **Start New Page** to print the object at the top of a new page.

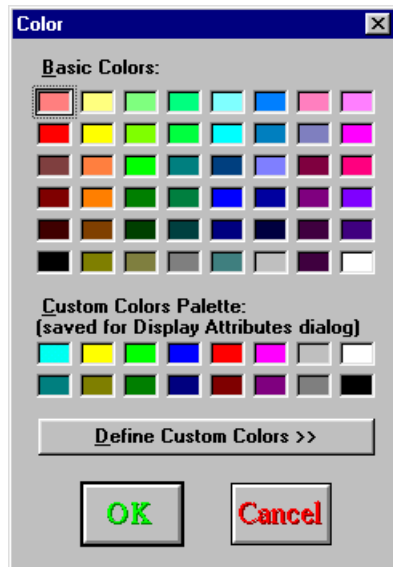
Choose:

- **To Prevent Split** to start a new page if the whole object cannot fit on the current page.
- **Always** to start a new page each time the object is printed.

Sample shows you how the object will display on the document using the current settings.

Color Dialog Options

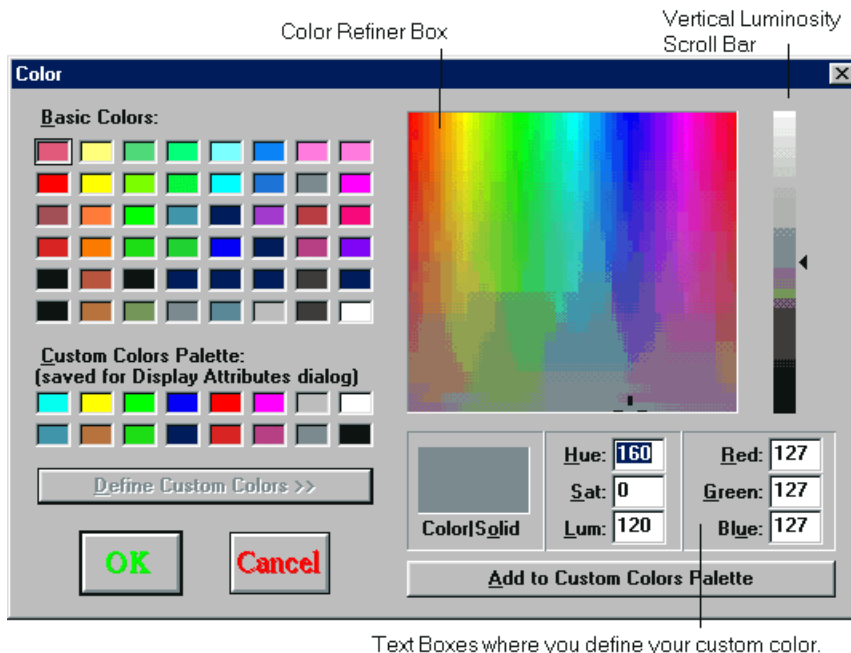
When you select **More Colors** in the Display Attributes dialog, DataEase displays the Color dialog. This dialog lets you select additional colors from the Basic Color Palette and define your own.



Basic Colors displays 48 additional colors. Click on a color to select it. Alternatively, use the arrow keys to move through the colors and press the spacebar to highlight your choice.

Custom Colors displays previously defined colors (if any).

Define Custom Colors expands the Color dialog so you can create colors that are not offered on the Basic Colors Palette. The expanded Color dialog is shown below. DataEase lets you create and save up to sixteen custom colors.



Color Refiner Box lets you choose a new color by clicking (and dragging) the mouse on the box. Move the cursor horizontally to change the color hue. Move the cursor vertically to change the color saturation.

Vertical Luminosity Scroll Bar lets you change the luminosity (brightness) of the color by clicking (and dragging) the mouse on the bar. The purest version of the current color is displayed at the middle of the bar.

Color/Solid displays the color at the current settings as both a color (pattern) and a solid. Double-click on the solid to change the color (pattern) to the solid.

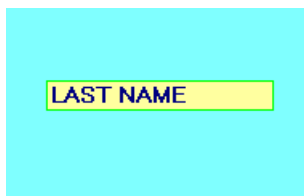
Text Boxes let you enter exact values for the following:

- **Hue** indicates the hue of the color (along the horizontal axis of the Color Refiner Box).
- **Sat** indicates the saturation of the color. (along the vertical axis of the Color Refiner Box) from gray (0) to pure color (240).
- **Red** indicates the amount of red in the current color (from 0 to 255).
- **Green** indicates the amount of green in the current color (from 0 to 255).
- **Blue** indicates the amount of blue in the current color (from 0 to 255).

Add to Custom Colors Palette replaces the color selected in the Custom Colors Palette with the color defined by the current settings.

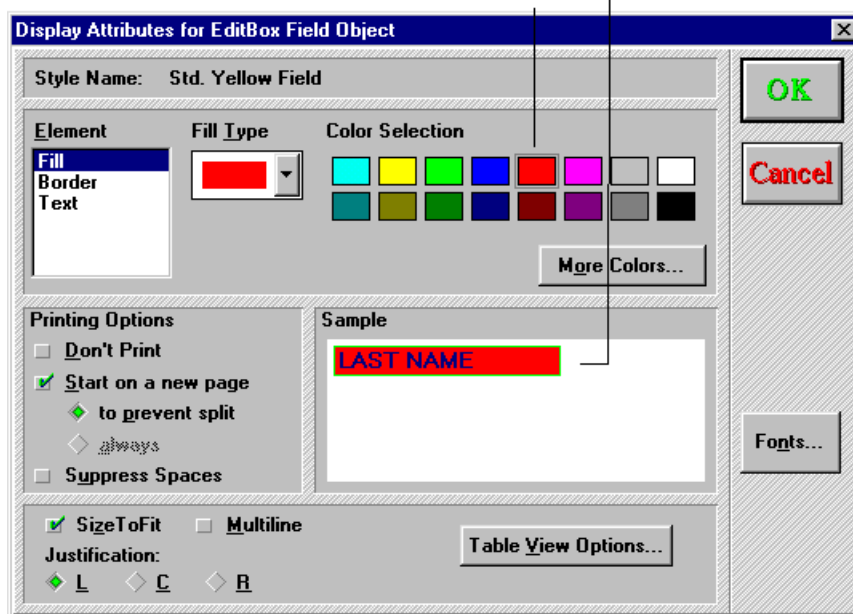
How to Change the Color of a Document Object

1. Double-click on the object to display the Object Definition dialog.
....or
Select the object, click the right mouse button, then select the Display menu option.
...or
Select the object and then click on the Display Attributes button on the Toolbar
2. Select the element whose color you want to change.
3. Click on the color you want from the Color Selection Palette.
...or
Click on More Colors and choose a color from the Basic Colors Palette.
4. When you finish selecting colors for each of the Display Elements, click OK.



To change the field background to Red, click on Fill, then click on the Red box on the Color Selection Palette.

Color Selection Palette, with Red highlighted. Notice that the field's background color has now changed to red.



How to Define Custom Colors

1. Click on the Define Custom Colors button on the Color dialog.
2. Highlight the color in the Custom Colors Palette that you want to replace with a new color.
3. Use the Color Refiner Box and the Vertical Luminosity Scroll Bar to select the color you want.

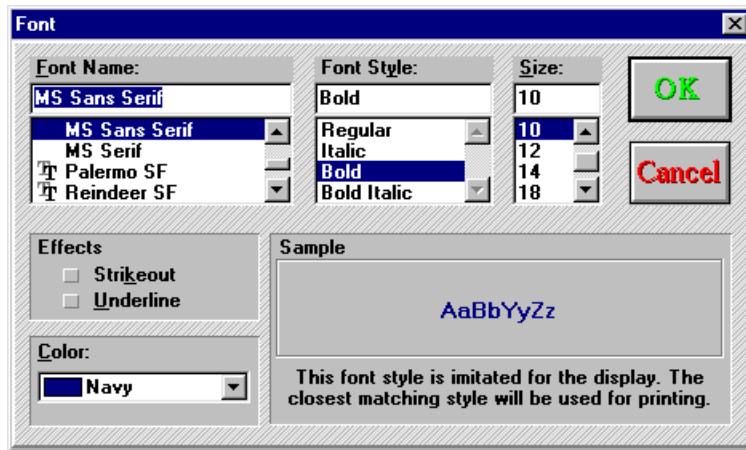
...or

Enter the appropriate values in the Hue/Sat/Lum and Red/Green/Blue boxes

4. Click the Add to Custom Colors button. The new color replaces the color selected in the Custom Colors Palette.
5. When you finish adding all the colors you want, click OK to save the Custom Colors Palette, then click OK to close the Display Attributes dialog.

Font Dialog Options

The Font dialog lets you set the font style, size, effects, and color for Text, Field and Button objects.



Font Name displays the typeface used by the text part of the object.

Font Style displays the highlighting format of the text part of the object.

Size displays the point size of the text part of the object.

Effects tells DataEase what special effects to assign to the text part of the object. Choose:

- **Strikeout** to display the text with a horizontal line through it.
- **Underline** to display the text with a horizontal line beneath it.

Color displays the color of the text part of the object.

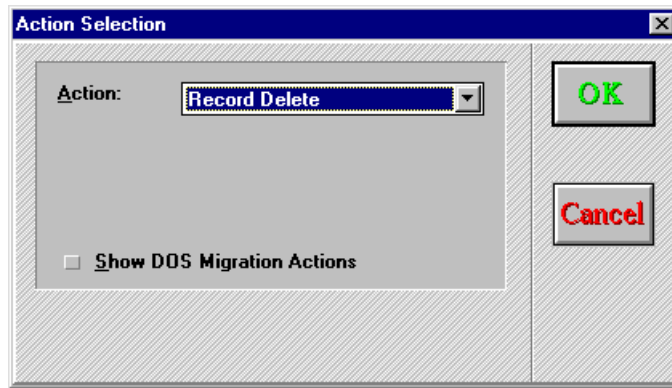
Sample illustrates the settings on the Font dialog with sample text.

How to Change the Font used in an Object

1. Click on the Font button on the Display Attributes dialog.
...or
Highlight the object, click on the right mouse button, and select Font from the Object Express menu.
2. Use the ↑ and ↓ arrows to select a Font.
3. Select a Font Style.
4. Type the point size or use the ↑ and ↓ scroll arrows to select the point size.
5. Click the drop-down arrow and select a color.
6. Optionally, choose an Effect.
7. Click OK to close the dialog.

Action Selection Dialog Options

The Action Selection dialog lets you assign an action to a Button or Picture object. The action you assign to the object is executed when you click on the object. You can make your DataEase applications easier to use by creating Button and Picture objects and assigning actions to them.



Select Action lets you assign the object an Action, e.g. Toggle Toolbar, which displays or hides the Toolbar. If the action requires a parameter, DataEase displays a parameter box -e.g. if you pick the Action "Open Form", you will be prompted to supply the Name of the form you want opened.

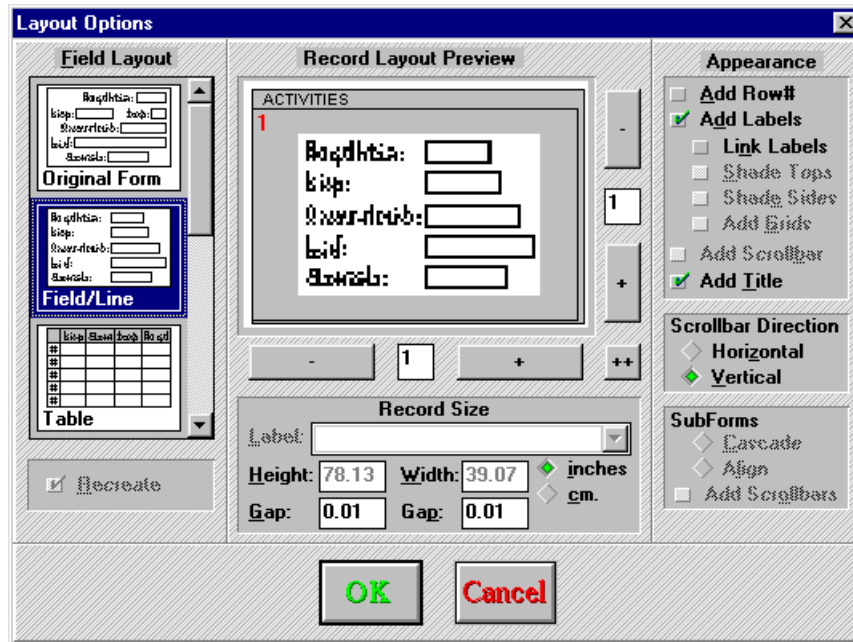
Show DOS Migration Actions expands the list of Actions to include selected Actions available in DataEase for DOS.

How to Assign an Action to an Object

1. Click on the Action button on the Display Attributes dialog.
...or
Highlight the object, click the right mouse button, and select Action from the Object Express menu.
...or
Highlight the object and click on the Action button on the Toolbar.
2. Click the drop-down arrow to open the Select Action list and choose an action. If necessary, enter a parameter in the parameter box.
3. Click OK to close the dialog.

Layout Options Dialog Options

The Layout Options dialog lets you arrange the fields in a Record object and the records in a Form or Subform object. You can also use this dialog to display row numbers, field labels, scroll bars, and form titles.



Field Layout lets you specify one of seven formats. Choose:

- **Original Form** to arrange fields exactly as they were laid out by the designer of the form.
- **Field/Line** to arrange fields vertically, one per line. If you select Add Labels, the fields are preceded by their Field Names. DataEase arranges the Field Names and fields in two vertical columns.
- **Table** to arrange fields as columns in a table, with one row for each record.
- **Table Across** to arrange fields as rows in a table, with one column for each record.
- **Mailing Label** to arrange fields vertically, one per line, with no text labels.
- **Custom** to arrange fields manually on the object in a layout you design. DataEase displays a blank document. You design the layout, arranging the Text, Fields, and other document objects in any way you want.
- **Movie Credits** to arrange fields vertically, one per line. If you select Add Labels, the fields are preceded by their Field Names in one column, and the left-edges of the fields in the other column.

The seven Layout Options are shown below.

Original Form

Text

More Text

Text

Field/Line

Field Name

Field Name

Field Name

Table

	Text Label	Text Label
#	<input type="text"/>	<input type="text"/>
#	<input type="text"/>	<input type="text"/>

Table Across

Text Label	<input type="text"/>	<input type="text"/>	<input type="text"/>
Text Label	<input type="text"/>	<input type="text"/>	<input type="text"/>

Mailing Labels

Movie Credits

Text Label

Long Text Label

Text Label

Custom

More Text

Text

Text

Record Layout Preview tells DataEase how many records to display both vertically and horizontally. Click on the plus sign (+), double-plus sign (++), and minus sign (-) to add and delete rows and columns on the object.

Appearance lets you specify whether DataEase displays row numbers, field labels, label shading, scroll bars, or titles on the object. Choose:

- **Add Row #** to display the row number at the start of each record.
- **Add Labels** to display Field Names as column labels (Table) or row labels (Table Across). You must choose Add Labels to use the next four options
 - Link Labels** to link the label to its corresponding field, so they can be selected, moved, or deleted as a unit.
 - Shade Tops** to add color to the top row of the form (Table and Table Across only).
 - Shade Sides** to add color to the leftmost column of the form (Table and Table Across only).
 - Add Grids** to display grid lines between rows and columns (Table and Table Across only).
- **Add Scrollbar** to display a scroll bar used to scroll through records.

- **Add Tile** to display the Relationship name (Relationship) or Table Name (Group) as the document title.

Scroll Direction lets you specify how you want to scroll records. Choose:

- **Horizontal** to scroll records left or right.
- **Vertical** to scroll records up or down.

Subforms lets you specify how DataEase positions one or more Subforms in relation to the Main Form. Choose:

- **Cascade** to display Subforms top-to-bottom in a staggered column (i.e., DataEase positions the Main form along the left margin, and indents each Subform slightly more than the Subform before it).
- **Align** to display Subforms side-by-side from left to right.
- **Add Scrollbars** to display a scroll bar used to scroll through Subform records.

Record Size lets you specify the size of the Record object. Use:

- **Label** to choose a predefined Avery or Dennison label from the drop-down list that DataEase displays (the Label option is activated only if you select Mailing Labels as the Field Layout option). To enter a custom size, choose the Other: Set Size Option.
- **Height** to specify the height of the record area in inches or centimeters.
- **Width** to specify the width of the record area in inches or centimeters.
- **Gap** to specify the horizontal and vertical spacing between records in inches or centimeters.

***Note:** To resize the form, specify new Height and Width values, or simply click and drag the form area.*

Recalculate tells DataEase to redraw the layout completely.

How to Specify Layout Options for a Record, Form, or Subform Object.

1. Click on the Layout button on the Display Attributes dialog.

...or

Highlight the object, click the right mouse button, and select Layout from the Object Express menu.

...or

Highlight the object and click on the Layout Options button on the Toolbar.

2. Use the scroll bar to view the Field Layout choices. Click on the desired choice.
3. Use the +, ++, and - keys to increment or decrement the number of records displayed in the Record Layout Preview.
4. Check any of the desired Appearance options. Optionally, enter a Height, Width, and Gap.
5. Select a Scroll Direction.
6. Click OK to close the dialog.

Defining Document Objects

This section explains how to create any modify each Document object, and describes how to create and update Object Styles. The table below summarizes the properties of each Document object.

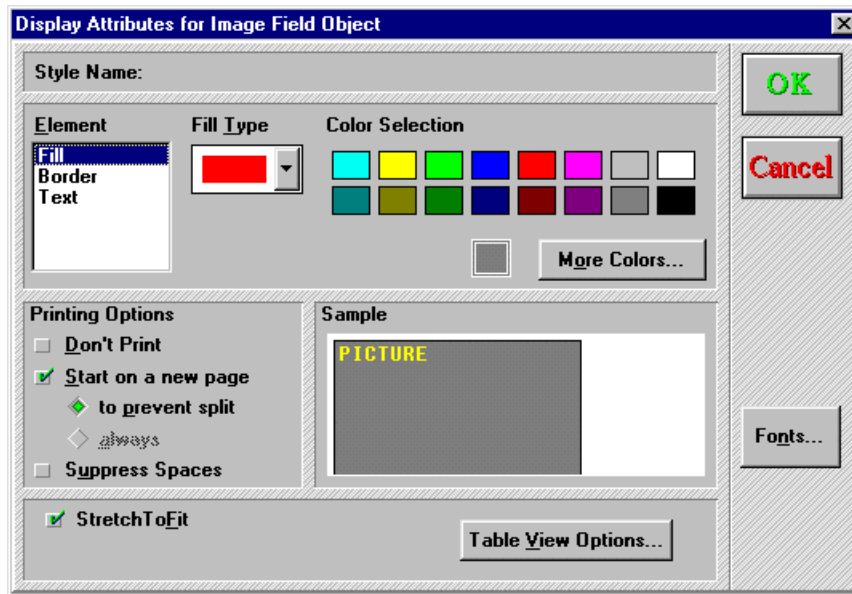
Object	Description
Text	Alphanumeric string usually used to identify various parts of a document.
Field	Object that displays data which is retrieved from a column in a database table, or derived from a formula.
Subform	Object placed within a form to display data from a related table.
Button	Object that performs an action, such as opening or closing a document.
Picture	Object that displays an image. The image can optionally perform an action.
Line	Graphic object that may be used as a boundary between two parts of a document.
Rectangle	Graphic object that may be used to enclose or highlight part of a document.
Ellipse	Graphic object that may be used to enclose or highlight part of a document.
Application Variable	Object that displays system-generated information, such as the Current Date and Time, Current User Name, and so on.
Summary Variable	Object that displays information summarizing the data in a document
OLE	Object that contains linked or embedded information from another Windows application.
Custom Field	A field that automatically specifies a data type and/or a visual control. For example, a List Box Field displays choices in a drop-down list.
Header/Footer	Object used to repeat or summarize information from page to page in a form, report, or procedure. Object types that may be placed inside a Header or Footer are activated in the Objects menu and Object palette.
Record	A collection of fields and other objects used to display information about one person, place, or thing. All objects represented in the Objects menu, except Subform objects, may be placed inside a Record object. DataEase automatically creates a record object when you choose File-New-Form .
Form	The bottom layer of a document beneath all other objects. DataEase automatically creates a Form object when you choose File-New-Form .

Creating a Text Object

When you choose Objects-Text, DataEase activates the Text tool, which lets you create a Text object. A Text object is a block of descriptive text, such as a form name or a field label, that is generally used to provide contextual information about fields, Subforms, and other objects in a document.

Display Attributes Dialog Options

The **Display Attributes** dialog contains several options that are specific to Text objects. These options are explained below.



Element lets you choose which part of the Text object you want to modify. Choose:

- **Fill** to change the color of the Text area. When you choose Fill, DataEase displays the Fill Type drop-down list.
- **Border** to change the color of the Text area border. When you choose Border, DataEase displays the Border Type drop-down list.
- **Text** to change the color of the characters that make up the Text object.

Size to Fit tells DataEase to automatically resize the Text object according to the font specifications.

Fonts displays the **Font** dialog.

How to Create a Text Object

1. Choose Objects-Text. DataEase displays the Text cursor.
2. Click the mouse on the document to create a Text object of default size.
...or
Click and drag the mouse on the document to draw a Text object.
3. Type the text that you want to display on the screen. To start a new line, press Shift-Enter, or Ctrl+Enter.
4. Click the Display Attributes button on the Toolbar. DataEase displays the Display Attributes for the Text Object dialog.
5. Specify the Display Attributes and click OK to close the dialog.

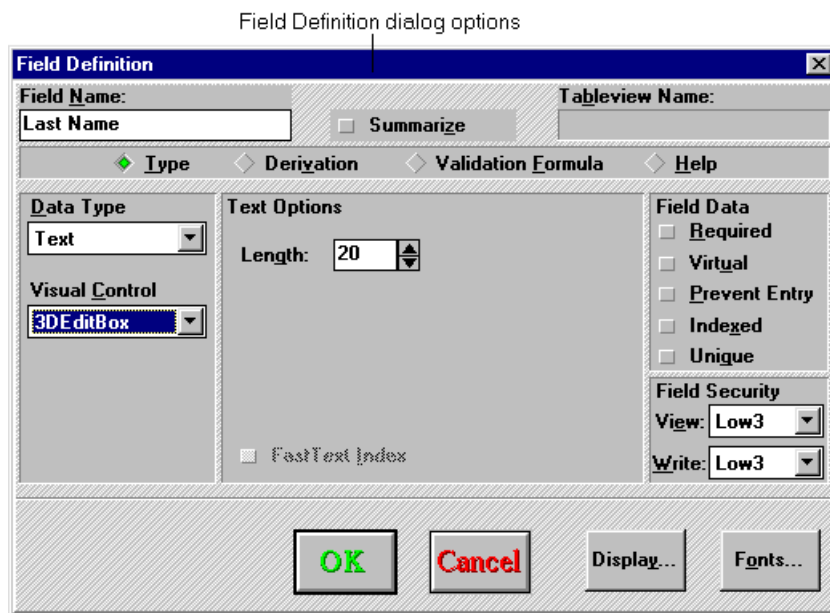
How to Modify a Text Object

- To change the characters on the screen, click on the Text object to insert the Text cursor. Edit the text using Insert, Backspace, Delete, or any of the text editing keys.
- To modify text attributes (font, color, etc), select the Text object and click on the Display Attributes button on the toolbar. DataEase displays the Display Attributes for the Text Object dialog.

Creating a Field Object

When you choose Objects-Field, DataEase activates the Field tool, which lets you create a Field object. A Field object accepts and displays user-entered data, or automatically calculates a value from a formula, which may itself take values from other fields. Each field object has a distinctive name used to reference the value it contains.

When you draw a Field object on the document and release the mouse button, DataEase displays the Field Definition dialog. This dialog lets you specify the characteristics of the Field object (e.g. set the Field Type, enter a Derivation or Validation formula, create a Help message, and define other important field characteristics).



Field Definition Dialog Options

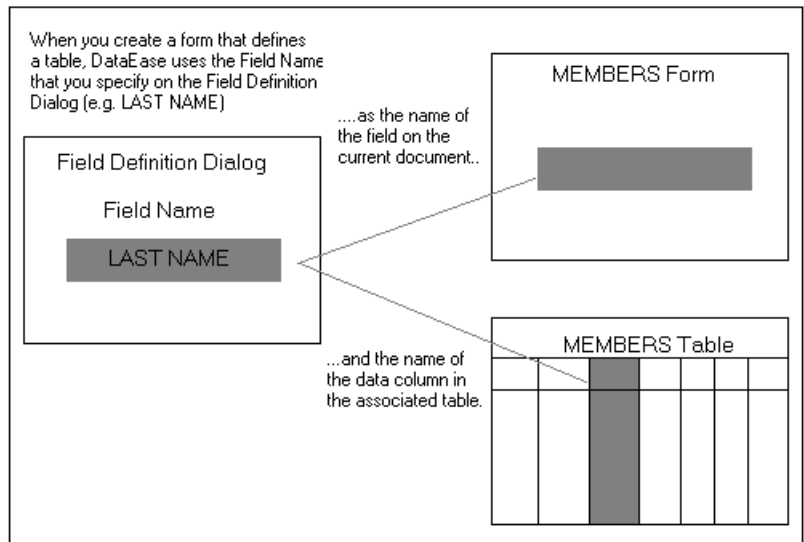
Field Name lets you enter the name of a field. A Field name can be up to 30 characters long, including letters, numbers, ANSI characters, and spaces. When selecting Field Names, avoid choosing Reserved Words. Reserved Words include DQL command and function names.

DataEase automatically creates a default Field Name for each field (e.g. the first field on the form is assigned the default name Field 1, followed by Field 2, and so on). To change the default name to something more meaningful and useful, simply type in a new name.

When you create a form that **defines** a table, DataEase creates a new data column using the Field Name you specify. Each foreign database engine enforces its own restrictions on the length and permitted characters in a field name, and will have its own list of Reserved Words. Be sure to check for such technical legalities before defining a Field Name that accesses a foreign engine.

When you create a form that **uses** a table, DataEase lets you create a:

- **Data Field**, which displays data from a table column. You cannot change the properties of this field - such as the Field Type or the Derivation Formula. To create a Data field, choose the name of a table column from the drop-down list that DataEase displays.
- **Derived Field**, which derives its value from one or more table columns. To create a derived field, enter a new name and specify a derivation formula.



Summarize displays options that let you specify statistical operators to derive the current field value. The dialog options associated with the Summarize option are explained later in this section.

Field Definition Display Options control the options that DataEase displays in the center of the Field Definition dialog.

The four Field Definition Display options are described in the table below.

Option	Lets you Define...
Type	Basic Field characteristics (e.q. field length).
Derivation	A formula that automatically enters a field value.
Validation Formula	A formula that limits user-entered values.
Help	Custom Field Help message.

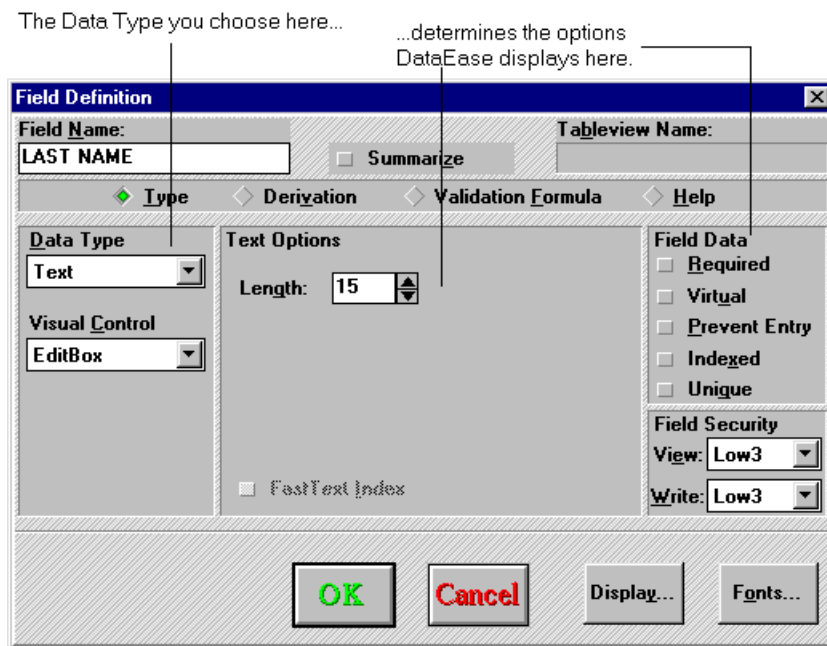
The dialog options associated with each Field Definition Display option are explained in detail later in this section.

Field Security lets you specify the minimum security level required to see (View) and modify (Write) data. The default security level for both View and Write operations is **Low 3**. Field security levels are overridden by the security level settings in the Document Properties dialog.

Display opens the **Display Attributes** dialog.

Fonts opens the **Fonts** dialog.

When you click on Type, DataEase lets you specify the Data Type and its associated options.



Data Type lets you specify the type of data (e.g. Text, Number, Date) that you want to store in the field. The default Data Type is text.

Each Data Type is described in detail later in this section.

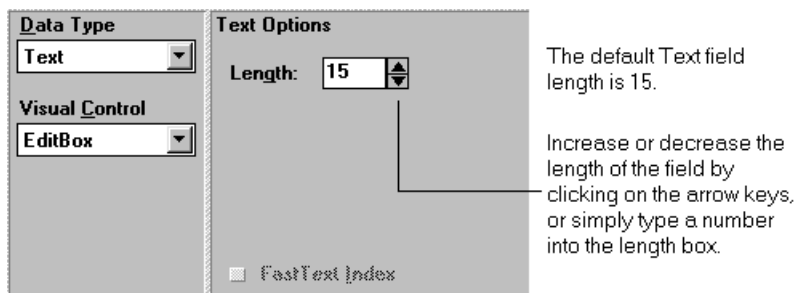
Visual Control lets you specify the appearance of the field on the form (e.g. EditBox, RadioBox, Spin). The field's Data Type determines which Visual Controls you can select. The most common type of Visual Control is the Edit Box.

Each Visual Control is described in the explanation of the Data Type itself.

Text Data Type

A Text field stores and displays descriptive information, such as a name or address. DataEase accepts all alphanumeric (and ANSI) characters in a Text field., except the three DataEase wild card characters (*, ?, and ~).

Length lets you set the maximum number of characters accepted by the Text field. The default is 15 characters. The maximum number is 255 characters.



Fast Text Index lets DataEase find matching records quickly and reduces the size of the index file. If a Text field is longer than 114 characters, you **must** use a Fast Text Index. If a Text field is less than 5 characters in length, you **cannot** use a Fast Text Index.

We recommend that you **add** a Fast Text Index to a Text field that you:

- Use frequently to search for an exact matching string (by using the "equal to" operator).
- Use as a Match field in a relationship.

However, we recommend that you do **not** add a Fast Text Index to a Text field that you:

- Use to frequently search for a range of values (by using operators such as "between" and "less than").
- Use to sort records.

DataEase lets you display a Text field in three ways:

- **EditBox** displays alphanumeric values in a rectangular field.
- **3D EditBox**, which is identical to an Editbox, but contains enhanced Display properties to make it more attractive or eye catching.
- **Imagefield** accepts an image filename and displays graphic data in User View.

You can include a pathname (e.g. C:\EMPLOYEE\BMPS) directly in an image field. If you do not specify a pathname, DataEase searches the directories specified in the Image Search Path on the Application Preferences dialog.

Sample text values are:	
14 Curtain Road	(Street)
London	(City)
United Kingdom	(Country)

Note: A US ZIP code can be a Text field or a Numeric String field. UK Postal Codes are normally held as Text fields.

Numeric String Data Type

A Numeric String field stores and displays numbers used for identification only (i.e. numbers that are NOT used for calculations - such as a telephone number). The maximum length of a Numeric String field is 255 digits. DataEase fills an incompletely filled Numeric String field with leading zeros.

Format lets you define two types of Numeric String fields

- **Predefined** - select a Formatted String Option from the list of seven formats DataEase displays in the drop-down list box.
- **Custom** - create a custom format by typing a nine (9) or zero (0) for each digit position and, optionally, the exact punctuation marks or formatting characters (such as dashes) you want.

Choose a predefined format from the list that DataEase offers you.

...or create a Custom format by typing a 9 or 0 (zero) for each digit position. You can add formatting characters such as / (slash) and - (dash) to a Custom format.

There is an option to turn off the automatic padding in Numeric String fields in the Document Properties dialog.

Although a Numeric String value is not designed for calculations, a DQL mathematical function can be used on it (e.g. floor).

DataEase automatically converts the first (leftmost) 14 digits to a Floating Point Number and returns the first 14 digits of the result. Any remaining digits are truncated and lost.

Fast Text Index lets DataEase find matching records quickly and reduces the size of the index file. If a Numeric String field is longer than 114 characters, you **must** use a Fast Text Index. If a Numeric String field is less than 5 characters in length, you **cannot** use a Fast Text Index.

We recommend that you **add** a Fast Text Index to a Numeric String field that you:

- Use frequently to search for an exact matching string (by using the "equal to" operator).
- Use as a Match field in a relationship.

However, we recommend that you do **not** add a Fast Text Index to a Numeric String field that you:

- Use to frequently search for a range of values (by using operators such as "between" and "less than").
- Use to sort records.

DataEase lets you display a Numeric String field in three ways:

- **EditBox** displays alphanumeric values in a rectangular field.
- **3D EditBox**, which is identical to an Editbox, but contains enhanced Display properties to make it more attractive or eye catching.
- **SpinBox**, which displays numeric values. Type in a value or use the vertical arrow controls to display a value.

Sample Numeric String field values are:

009826	(MEMBER ID, a Custom Numeric String)
123 45 6789	(SOCIAL SECURITY NUMBER, a predefined Numeric String for use in the US).

Number Field Data Type

A Number Field stores and displays a numeric value that can be used in calculations. When you define a Number field, you select one of three types:

Integer contains only whole numbers (no decimal point).

Floating Point lets you specify the location of the decimal anywhere in the field, by pressing the decimal key (.) in User View.

Fixed Point lets you predefine the number of digits to the left and right of the decimal point. Choose the number of digits to the right of the decimal point from the Decimals box.

Digits and Decimals - defining a Number field

Field Definition

Field Name: NumberField Tableview Name:

☐ Summarize

Type Derivation Validation Formula Help

Data Type: Number

Visual Control: EditBox

Number Options

Digits: 5

Decimals: None
Float
1
2
3

Field Data

☐ Required
☐ Virtual
☐ Prevent Entry
☐ Indexed
☐ Unique

Field Security

View: Low3
Write: Low3

OK Cancel Display... Fonts...

Selecting None will define an Integer field

Selecting Float will define a Floating Point field.

Selecting a specific number of decimals will define a Fixed Point field.

Digits lets you select the maximum number of digits accepted by a Number. The maximum number is 14.

Decimals lets you define the three types of Number field - Integer, floating Point or Fixed Point.

For Integer and Fixed Point fields, DataEase automatically adds a comma after every third digit.

By default, DataEase displays the comma (,) as the 1000 separator. To change the default, select International from the Windows Control Panel.

The decimal point (.) and negative sign (-) each take up one digit in a Number field. When you define a Number field, be sure to allow room for a decimal and the negative symbol (Commas do not take up a digit).

DataEase lets you display a Number field in three ways.

- **EditBox** display alphanumeric values in a rectangular field.
- **3D EditBox**, which is identical to an Editbox, but contains enhanced Display properties to make it more attractive or eye catching.
- **SpinBox**, which displays numeric values. Type in a value or use the vertical arrow controls to display a value.

Sample Number Values are:	
7,890, 234	(Integer)
780.2345 7812.446	(Floating Point. The decimal point can be placed wherever the user wants it)
1500.50	(Fixed point with 2 decimals)

Currency Field Data Type

A Currency field stores and displays a monetary amount that can be used in calculations. By default, DataEase uses the Currency format currently set in the Windows Control Panel Regional Settings.

The Currency field at its default value. Currency fields obey the Regional Settings in your Windows Control Panel.

Field Definition

Field Name: ☐ Summarize

Tableview Name:

◆ Type ◆ Derivation ◆ Validation Formula ◆ Help

Data Type
Currency

Visual Control
EditBox

Currency Options
 Digits:
 Decimals:

Field Data
☐ Required
☐ Virtual
☐ Prevent Entry
☐ Indexed
☐ Unique

Field Security
 View:
 Write:

Increase or decrease the length of the field by clicking on the arrow keys - or simply type in the number you want.

Specify either None or 2 as the amount of digits to the right of the decimal.

Digits lets you select the maximum number of digits accepted by a Number. The maximum number is 14.

Decimals lets you define the three types of Number field - Integer, floating Point or Fixed Point.

DataEase lets you display a Currency field in three ways.

- **EditBox** display alphanumeric values in a rectangular field.
- **3D EditBox**, which is identical to an Editbox, but contains enhanced Display properties to make it more attractive or eye catching.
- **SpinBox**, which displays numeric values. Type in a value or use the vertical arrow controls to display a value.

Sample Currency field values are:	
1,705.38	(Currency with 2 decimals)
1,705	(Currency with No decimals)

Date Field Data Type

A Date field stores and displays a Calendar date. DataEase offers two Date formats - Standard and Extended.

A Standard Date field always has 8 digits (6 numbers plus 2 slashes, e.g. 12/10/99).

An Extended Date field has 10 digits (8 numbers and 2 slashes, e.g. 12/10/1999).

DataEase Dates obey your Regional Settings, set in the Windows Control Panel.

Field Definition

Field Name: ☐ Summarize Tableview Name:

◆ Type ◇ Derivation ◇ Validation Formula ◇ Help

Data Type
Date

Visual Control
EditBox

Date Options
Format:
Date Type: ◆ Standard ◇ Extended

Field Data
☐ Required
☐ Virtual
☐ Prevent Entry
☐ Indexed
☐ Unique

Field Security
 View:
 Write:

OK Cancel Display... Fonts...

Standard Date 12/10/99

Extended Date 12/10/2001

Format displays the Date Format. DataEase takes its format from Short Date Style in the Windows Regional Settings, found in Windows Control Panel.

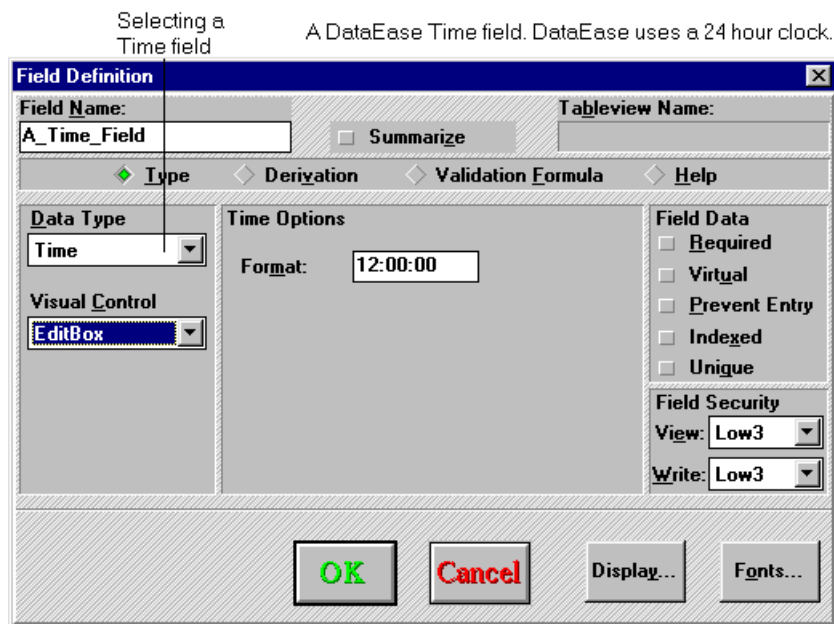
DataEase lets you display a Date field in two ways:

- **EditBox** display alphanumeric values in a rectangular field.
- **3D EditBox**, which is identical to an Editbox, but contains enhanced Display properties to make it more attractive or eye catching.

Sample Date field values are:	
06/24/97	(US format, Month, Day, Year - in a Standard Date field).
05/20/1997	(US format, Month, Day, Year - in an Extended Date field).
30/11/02	(International format, Day, Month, Year - in a Standard Date field).
23/11/2001	(International format, Day, Month, Year - in an Extended Date field).
95/04/24	(Metric format, Year, Month, Day - in a standard Date field).
1991/07/21	(Metric format, Year, Month, Day - in an Extended Date field).

Time Field Data Type

A Time field stores and displays a clock numerical value. The length of a Time field is always 8 digits (6 numbers plus 2 colons, e.g. 12:15:00).



Format displays the Time format. DataEase uses a 24 hour clock, i.e. values between 0 and 24 inclusive are permitted in the two Hours digits.

You can perform calculations on Time fields. If you add or subtract a time and an integer (e.g. TIME + 120), the result is a Time Value. The integer is treated as a number of seconds (120 seconds in the example above). If you subtract one time from another, the result is an integer (representing the number of seconds).

DataEase lets you display a Time field in two ways:

- **EditBox** display alphanumeric values in a rectangular field.
- **3D EditBox**, which is identical to an Editbox, but contains enhanced Display properties to make it more attractive or eye catching.

Sample Time field values are:	
10.57.36	(Hours, Minutes, Seconds)
22.40.00	(10.40pm in a 12 hour clock).

Note: To make DataEase display the current time in a field, enter **lookup current time** as the Derivation Formula.

Sequenced ID Field Data Type

A Sequenced ID field stores and displays an automatically incremented value. Sequenced ID fields can hold both Numbers and Letters, i.e. 0-9 and A-Z.

We recommend that you assign the **Prevent Entry** attribute to each Sequenced ID field.

Increase or decrease the length of the field by typing in a new number.

Field Definition

Field Name: A Sequenced Field ☐ Summarize Tableview Name:

Type Derivation Validation Formula Help

Data Type
Sequenced ID

Visual Control
EditBox

Sequence ID Options
Length: 5
Starting value: 1
☐ FastText Index

Field Data
☐ Required
☐ Virtual
☐ Prevent Entry
☐ Indexed
☐ Unique

Field Security
View: Low3
Write: Low3

OK Cancel Display... Fonts...

Specify the Starting Value for the first record. DataEase increments this value by one (+1) for each subsequent record.

Length lets you set the maximum number of characters accepted by the Sequenced ID field. The maximum number is 255.

Starting Value lets you specify the starting value of the first record entered in User View. The field value in each subsequent record is automatically incremented by one (+1).

Numbers increase in value from 0 to 9, and letters increase from A to Z. When a character reaches its limit, DataEase resets the character and increases the value of the character to the left by one.

DataEase lets you display a Sequenced ID field in three ways.

- EditBox display alphanumeric values in a rectangular field.
- 3D EditBox, which is identical to an Editbox, but contains enhanced Display properties to make it more attractive or eye catching.
- SpinBox, which displays numeric values. Type in a value or use the vertical arrow controls to display a value.

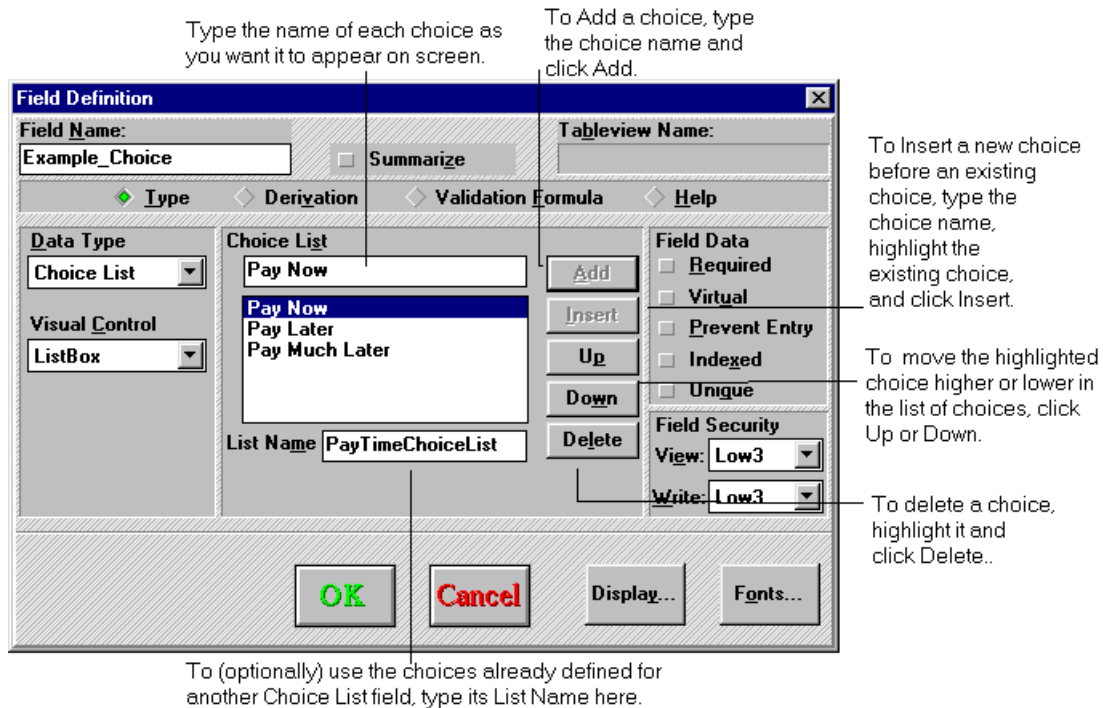
Sample Sequenced field values are:

RESERVATION ID	00047
MEMBER ID	00182
CLUB ID	003
ACTIVITY ID	A11

Choice List Data Type

A Choice List field displays a list of predefined values in User View. The advantages of using Choice List fields are:

- **Significantly reduced disk space** - DataEase stores each choice as a number, not as a text string.
- **Faster and more accurate record entry** - users can only choose values you define - they can't type in an invalid option, or spell a name incorrectly.



Choice List lets you enter the name of each choice. DataEase lets you define up to 99 choices of up to 60 characters each for each Choice List field. The length of a Choice List field is automatically determined from the longest value you enter.

List Name lets you enter the name of the list of choices. To use the options that appear in another Choice List field, just type its Field Name.

Add includes the name of a new choice above the selected list item.

Insert includes the name of a new choice above the selected list item.

Up moves the selected item up the list.

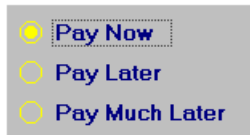
Down moves the selected item down the list.

Delete removes the selected item from the list.

DataEase lets you display a Choice List in two ways.

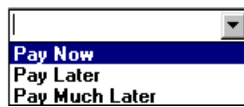
- **RadioBox** displays choices as radio buttons.
- **ListBox** displays choices in a drop-down list.

The Choice List as a RadioBox.



☒ Pay Now
☐ Pay Later
☐ Pay Much Later

The Choice List as a ListBox.



Pay Now
Pay Later
Pay Much Later

Yes/No Field Data Type

A Yes/No field is a Choice List field that accepts only Yes and No values. The length of a Yes/No field is always three digits.

The screenshot shows the 'Field Definition' dialog box. The 'Field Name' is 'YesandNo'. The 'Tableview Name' is empty. The 'Summarize' checkbox is unchecked. The 'Type' tab is selected, showing 'Data Type' as 'Yes/No' and 'Visual Control' as 'CheckBox'. The 'Field Data' section has checkboxes for 'Required', 'Virtual', 'Prevent Entry', 'Indexed', and 'Unique', all of which are unchecked. The 'Field Security' section has 'View' and 'Write' both set to 'Low3'. At the bottom are buttons for 'OK', 'Cancel', 'Display...', and 'Fonts...'.

DataEase lets you display Yes/No fields in three ways.

- **CheckBox** displays choices in a single box that toggles between Yes (selected) and No (deselected). The field contains a blank value (default) until you click on the check box. When you create a CheckBox field, DataEase displays the field name as the caption to the right of the check box.
- **RadioBox** displays choices as radio buttons.
- **ListBox** displays choices in a drop-down list.

Memo Field Data Type

A Memo field is a Text field that stores and displays descriptive information up to 4000 characters. DataEase accepts all alphanumeric (and ANSI) characters in a Memo field, except the three DataEase wild card characters (*, ? and ~).

A DataEase Memo field. You can select a length of up to 4000 characters. Increase or decrease the length by clicking the arrow keys, or simply type in the number you want.

Field Definition

Field Name: ☐ Summarize Tableview Name:

Type **Derivation** **Validation Formula** **Help**

Data Type
Memo

Visual Control
EditBox

Memo Options
Length: 2000

Field Data
☐ Required
☐ Virtual
☐ Prevent Entry
☐ Indexed
☐ Unique

Field Security
 View: Low3
 Write: Low3

OK Cancel Display... Fonts...

Length lets you set the maximum number of characters accepted by the Memo field. The maximum number is 4000.

DataEase lets you display a Memo field in two ways.

- **EditBox** display alphanumeric values in a rectangular field.
- **3D EditBox**, which is identical to an Editbox, but contains enhanced Display properties to make it more attractive or eye catching.

This is an example Memo field.
 Notice that there is a scroll bar
 on the right, allowing users to
 enter or view a large amount of
 text, without having to create a
 gigantic Memo field that takes
 up most of your document.

Field Data Options

The Field Data Options on the right side of Field Definition dialog let you specify whether a user **can**, **cannot**, or **must** enter data in the field when filling in a record.

The five Field Data Options

The screenshot shows the 'Field Definition' dialog box. The 'Field Name' is 'Example_Choice'. The 'Tableview Name' is empty. The 'Summarize' checkbox is unchecked. The 'Type' tab is selected, showing 'Data Type' as 'Choice List' and 'Visual Control' as 'RadioBox'. The 'Choice List' section has a list box, 'Add', 'Insert', 'Up', 'Down', and 'Delete' buttons, and a 'List Name' field. The 'Field Data' section on the right has five options: 'Required' (unchecked), 'Virtual' (unchecked), 'Prevent Entry' (unchecked), 'Indexed' (unchecked), and 'Unique' (unchecked). The 'Field Security' section has 'View' and 'Write' both set to 'Low3'. At the bottom are 'OK', 'Cancel', 'Display...', and 'Fonts...' buttons.

Required prevents a user from saving the current record until data is entered into the field. The CLUB ID field in Club ParaDEASE MEMBERS form is a Required field.

The Required field characteristic in a Native table is equivalent to the Not Null column attribute in a SQL database table.

Virtual derives the field value automatically each time the record is displayed or printed. The field value is **not** stored in the table. The CLUB NAME field in Club ParaDEASE RESERVATIONS form is a Virtual field (using the formula **lookup CLUBS CLUB NAME**). The advantages and disadvantages of using Virtual fields are summarized in the table below.

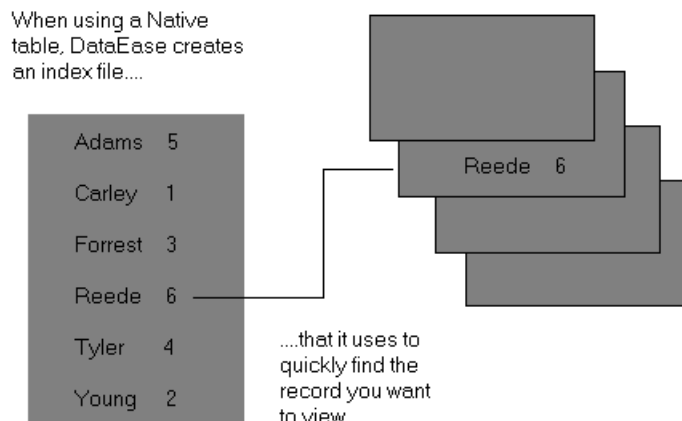
Using Virtual Fields	
Advantages	Disadvantages
Field is automatically rederived so it always displays the current value.	Field can't be assigned the Indexed Or Unique attribute.
Virtual attribute saves disk space Since the value is not stored.	Performance is decreased when a Virtual field is used in a Derivation Formula, or is used to enter record Selection criteria in QBF or QBM.

Note: Because any field in a form that uses a table Virtual field by default, DataEase automatically disables Field Data options.

Prevent Entry prevents a user from entering data in the field. Choose Prevent Entry for any field which has a value derived by a Derivation Formula (e.g. lookup CLUBS CLUB NAME). The RESERVATION ID field on the RESERVATIONS form is a Prevent Entry field.

Note: You can place the cursor in a Prevent Entry field when you are searching for records using QBF.

Indexed creates an indexed field attribute that helps DataEase find and/or sort records quickly.



If the document defines or uses a:

- **Native table**, DataEase creates an Index file for each new indexed field. You can index up to 254 fields per form. (This is a very high number. Normally you would have just a few indexed fields in a form).
- **SQL table**, DataEase creates an Index attribute on each column that corresponds to an Indexed field. Each SQL engine type imposes its own restrictions on the number of Indexed columns allowed per table.

When defining a form that uses a table, you cannot remove the Indexed field attribute from any field.

Note: When you remove the Index attribute from a field that defines a Native table, DataEase deletes the corresponding Index file.

We recommend that you index fields that are used:

- For searching and sorting.
- As Match (key) fields in a relationship.

For maximum performance, Index as few fields as possible. If you find you need additional indexes, you can add them later.

Indexing lets DataEase work much faster when:

- Selecting records
- Grouping and/or sorting records.
- Matching fields in related forms (performing lookups)
- Finding duplicate records.

The disadvantages of Indexing Native tables (only) are:

- Data entry functions more slowly, since it takes longer to add or modify records in each index file.
- Index files take up additional storage space on the hard drive.

You can create a **Fast Text** index on any Text or Numeric String field greater than four characters in length. You'll notice the greatest performance increase with fields longer than 40 characters. DataEase automatically creates a Fast Text index on any Indexed Text or Numeric String field longer than 117 characters.

Most SQL engines support **composite** indexes in addition to indexes based on single fields. A composite index identifies records based on the values in two or more fields (columns).

For example, if you indexed both the LAST NAME and the FIRST NAME fields on the Club ParaDEASE MEMBERS form, DataEase orders the records in the Index file in alphabetical order by LAST NAME, then by FIRST NAME.

Clustering is a server feature in which data is physically stored in indexed order to speed data retrieval. The field (or column) used to index clustered data is called the **cluster key**. The cluster key is made up of all the unique indexed fields in a table.

Clustering can greatly improve the performance of certain queries that select records based on a contiguous range of indexed values.

Unique creates a Unique field attribute that prevents duplicate records and preserves data integrity. MEMBER ID in Club ParaDEASE is a Unique field.

You should create a Unique field when you create a form that:

Defines a table - we recommend that you define at least one field as unique. Unique fields greatly decrease the time it takes DataEase to search/sort data in an SQL database.

Uses an existing table - you must create a field for each Unique column in the table, or DataEase will not let you save records in the form. DataEase automatically defines a Unique field attribute for each field defined over a corresponding Unique column.

Note: The combination of Unique fields on a DataEase form is called the Unique key.

DataEase lets you save the same Unique value in more than one record, as long as the combination key is unique. In other words, if you have two Unique fields on a form, it is the **COMBINED** data in these two fields which is unique, not the **INDIVIDUAL** data in either of the fields.

Derivation Formula

When you click on Derivation Formula, DataEase lets you specify a Derivation Formula, which automatically calculates a field value, and enters that value into the field.

A Derivation Formula can contain any combination of constant values, Field Names, DQL Functions, mathematical operators and/or relational statistical operators.

A **constant** value is a text, date, time, numeric string, or number value that does not change.

A **DQL Function** returns a value in a different format.

A **relationship name** refers to another table that the current form's underlying table is related to.

A **relational statistical operator** lets you extract and summarize data that is stored in a related table.

Field Definition

Field Name: Tableview Name:

☐ Summarize

Type Derivation Validation Formula Help

Functions Relationships Columns Operators

abs
acos
ampm
asin
atan
atan2
ceil

<This Table>
<New Relationship>
Current
ACTIVITIES
ALLACTIVITIES
FAMILY MEMBERS
RESERVATIONS

MEMBER ID
FIRST NAME
MIDDLE INITIAL
LAST NAME
STREET
CITY
STATE

/ *
7 8 9 +
4 5 6
1 2 3 -
0

(sum of "FAMILY MEMBERS" "ADULT CHECK" * 35.00)

OK Cancel Display... Fonts...

For example, the expression (sum of "FAMILY MEMBERS" "ADULT CHECK" * 35.00)

.....is the Derivation Formula in the ADULT FEES field on the MEMBERS form in the Club ParaDEASE application. This formula calculates the membership dues for all those adults entered in a record by multiplying the value in the TOTAL CHECK field in the FAMILY MEMBERS form by a constant 35.00 dollars.

A Derivation Formula can be used to speed data-entry and insure that a value is entered into the field. A derived value is entered in the field when the cursor enters the field, or when the record is saved.

Functions lists all the DQL predefined and custom-defined functions and the relational statistics operators. You can use the scroll bar to browse through the list of available functions.

Relationships displays all the relationships for the active form, including the current relationship which provides access to system information (current time, current date, current user name, current computername, and current user level). Use the scroll bar to view all the column names.

Columns displays all the field names for the active form. If a relationship is selected from the Relationships list, the columns list displays the names of the fields in the related form. Use the scroll bar to see all the column names.

Operators lists comparison operators, punctuation marks, and wild card characters. Use the scroll bar to view all the operators. Next to the list box of operators, DataEase displays a Numeric Keypad for entering numbers into a Derivation Formula (The numbers at the top of your keyboard also work - the Keypad is for extra convenience).

A Derivation Formula can also be entered manually. When you click on the OK button to save the formula, DataEase performs a spelling and syntax check. If any errors are found, DataEase displays an error message. You cannot save the field definition until you correct the error.

DataEase allows you to enter a Derivation Formula up to 4000 characters long. If the formula you enter exceeds the area of the Derivation Formula box, the formula scrolls, allowing you to continue typing.

The Derivation Formula must generate a value that is compatible with the Data Type for the current field. For example, a Derivation formula of "John Smith" would not be a valid formula for a Date field.

Note: If you don't want users to override the derived value, set the Data Entry option to either **Prevent Entry** or **Virtual**.

There are four types of Derivation Formula:

Default assigns a constant value to a field. For example, if you define the Derivation Formula "New York" in the DEPARTURE CITY field on the RESERVATIONS form of Club ParaDEASE, then DataEase automatically enters New York as the departure city field in every record - the operator doesn't have to type it in manually.

Lookup displays a field value from a related form. For example, if you define the Derivation Formula **lookup** "CLUBS" "CLUB NAME" in the CLUB NAME field of the RESERVATIONS form, DataEase finds the related record in the CLUBS form and returns the value to the CLUB NAME field. A relationship between the two forms must exist for a lookup formula to work.

Calculation uses arithmetic operators (+, -, *, and /) and/or DQL relational statistical operators (count of, sum of, mean of, highest of, lowest of) to calculate a field value. For example, if you define the Derivation Formula **sum of** to "RESERVATIONS DETAIL" "PRICE" in the ADULT PRICE field on the RESERVATIONS form, DataEase totals the values in the PRICE field in all the related RESERVATION DETAIL records, and displays this total in the ADULT PRICE field.

Function uses any DQL function to generate a field value. For example, if you define the derivation Formula (**upper**(STATE)) in the STATE field of the MEMBERS form, DataEase displays the STATE value in upper case, regardless of whether typed-in data is entered in lower or upper case.

Any of the four types of Derivation Formula can be combined, producing complex and powerful formula .

Use the numeric keypad to enter numbers into a Derivation Formula. Constant values and the associated quotation marks must be entered into a formula manually. If a Field Name or a relationship name contains more than one word, it must be enclosed in quotation marks (e.g. **count of** "FAMILY MEMBERS" "Last Name"). Otherwise, you can omit the quotation marks (e.g. count of MEMBERS Rooms). Constant text values, like the State abbreviation "CT", must also be entered in quotation marks.

A constant value must follow the rules listed below so DataEase can distinguish constants from Field Names, and distinguish different types of constants.

Rules for Constant Values

Field Type	Examples	Comments
Text	"James" "James Ivory"	Enclose in quotation marks.
Numeric String	20336577700	Do not type formatting characters.
Number, Currency	1234.12 12 -0.34	Do not type commas.
Date	12/10/99 11/04/1999	Type slashes.
Time	04:42:50	Type colons.
Choice	MASTER CARD	Type the value, not the choice number.

You can use parentheses to control the order in which mathematical operations are performed. When DataEase calculates a value, the operations in a Derivation Formula are performed from left to right. Multiplication and division take precedence over addition and subtraction. For example, the parentheses in the expression:

$(6 + 12) * 2$

..tell DataEase to perform the addition operation (6 + 12) and then multiply the result by 2.

Parentheses are also used around any expression that follows a DQL function. For example, the **jointext** function in the expression:

Jointext(FIRST NAME, jointext (" ", LAST NAME))

..tells DataEase to join the two text strings: the value in the FIRST NAME field and the value in the LAST NAME field.

When multiple sets of parentheses appear in an expression, the operation in the innermost set of parentheses is performed first. In this example, the inner function `jointext(" ", LAST NAME)` tells DataEase to join a leading space (indicated by the blank space between the quotation marks) to the value in the LAST NAME field. The other function then joins the first names to the result of the first operation, producing the typical mailing label format, as for example:

John Smith

The following example is a Derivation Formula in the DEPARTURE DATE field in the RESERVATIONS form.

```
If(DEPARTURE DATE , lookup "current date", blank, DEPARTURE DATE
+ (6 - weekday(DEPARTURE DATE)))
```

The first operation DataEase performs is the **weekday** (DEPARTURE DATE) function. The result is a number from 1-7.

The second operation subtracts the result of the first operation from 6. The new result is a number between -1 to 5.

In the final operation, DataEase performs the **if** function. If the DEPARTURE DATE is before today's date, the field value is blank; otherwise, DataEase adds the result of the second operation to the DEPARTURE DATE that was entered. The final result is a DEPARTURE DATE of the first Sunday following the date entered by the user.

The table below contains sample Derivation Formulas that are used in the Club ParaDEASE application.

Sample Derivation Formulas		Type of Derivation Formula: Default	
Form	Field	Derivation Formula	Tells DataEase to...
FAMILY MEMBERS	AGE STATUS	"ADULT"	Display the text value "ADULT"
MEMBERS	METHOD OF PAYMENT	VISA	Display the Choice List value VISA in the field.
RESERVATIONS	DATE	??/??/??	Enter the Current Date (as recorded by the computer's system clock) in a date field. Use this formula to display the date upon which the record was originally created.
GUEST LIST	TIME	?:?:??	Enter the Current Time (as recorded by the computer's system clock) in a time field. Use this formula to display the time at which the record was originally created.
RESERVATIONS	DEPARTURE ZONE	1	Enter the number 1 as the default DEPARTURE ZONE in a RESERVATIONS record.

Sample Derivation Formulas		Type of Derivation Formula: Complex Formulas	
Form	Field	Derivation Formula	Tells DataEase to...
MEMBERS	EXPIRATION DATE	lookup "CURRENT DATE" + 365	Add one year to the current date to calculate the EXPIRATION date.
FAMILY MEMBERS	AGE	floor ((lookup "CURRENT DATE" - DATE OF BIRTH) / 365.25	Calculate a person's age by subtracting the DATE OF BIRTH from the Current Date, dividing the result by 365.25 days, and finally performing the floor function on the result, to round the value down to the nearest whole number.

Sample Derivation Formulas		Type of Derivation Formula: Lookup	
Form	Field	Derivation Formula	Tells DataEase to...
FAMILY MEMBERS	LAST NAME	lookup "MEMBERS" "LAST NAME"	lookup and return the LAST NAME field value from the related record in MEMBERS.
RESERVATIONS	DATE	Lookup "Current Date"	Lookup the "Current Date" (from the computer's system date) and return it to the field. Use this formula to display the date that a record was last modified.

Sample Derivation Formulas		Type of Derivation Formula: Calculation	
Form	Field	Derivation Formula	Tells DataEase to...
MEMBERS	TOTAL DUE	ADULT FEES + CHILD FEES	Calculate the total membership dues for each MEMBERS record.
RESERVATIONS	TOTAL CHILD PRICE	sum of "RESERVATION DETAIL" "CHILD PRICE"	Calculate the total for all the related RESERVATION DETAIL records where the AGE STATUS field value is CHILD.

Sample Derivation Formulas		Type of Derivation Formula: DQL FUNCTION	
Form	Field	Derivation Formula	Tells DataEase to...
MEMBERS	STATE	upper (STATE)	Display the field value in Upper case, regardless of how it is entered.
MEMBERS	STATUS	if (EXPIRATION DATE < TODAY'S DATE, "EXPIRED", "ACTIVE")	Check the difference between the EXPIRATION DATE and TODAY's DATE, and enter a text value of either ACTIVE or EXPIRED in the Status field.

A **constant** value is a text, date, time, numeric string, or number value that does not change.

A **DQL Function** returns a value in a different format.

A **relationship name** refers to another table that the current form's underlying table is related to.

A **relational statistical operator** lets you extract and summarize data that is stored in a related table.

For example, the expression:

```
PRICE between 600.00 to 2200.00
```

..could be used as a Validation Formula in the PRICE field on the PRICES form in Club ParaDEASE., in order to set a lower limit of 600 and a higher limit of 2200. If an operator tried to enter a value outside this range, DataEase reports an error and prevents the cursor from leaving the field until the error is corrected.

Note: When you create a Validation Formula, you can establish either a lower limit, an upper limit, or both.

Functions lists all the DQL predefined and custom-defined functions and the relational statistics operators. You can use the scroll bar to browse through the list of available functions.

Relationships displays all the relationships for the active form, including the current relationship which provides access to system information (current time, current date, current user name, current computername, and current user level). Use the scroll bar to view all the column names.

Columns displays all the field names for the active form. If a relationship is selected from the Relationships list, the columns list displays the names of the fields in the related form. Use the scroll bar to see all the column names.

Operators lists comparison operators, punctuation marks, and wild card characters. Use the scroll bar to view all the operators. Next to the list box of operators, DataEase displays a Numeric Keypad for entering numbers into a Derivation Formula (The numbers at the top of your keyboard also work - the Keypad is for extra convenience).

A Validation Formula can also be entered manually. When you click the OK button to save the formula, DataEase performs a spelling and syntax check. If any errors are found, DataEase beeps and positions the cursor at the start of the invalid word or phrase. You cannot save the field definition until you correct the error.

DataEase allows you to enter a Validation Formula up to 4000 characters long. If the formula you enter exceeds the area of the Validation Formula box, the formula scrolls, allowing you to continue typing.

The Validation Formula must test for a value that is compatible with the Data Type for the current field. For example, a Validation Formula that sets a lower limit of "a" and a higher limit of "z" is not a valid formula for a Date field.

Use the numeric keypad to enter numbers into a Validation Formula. Constant values and the associated quotation marks must be entered into a formula manually. If a Field Name or a relationship name contains more than one word, it must be enclosed in quotation marks (e.g. **count of "FAMILY MEMBERS" "Last Name"**). Otherwise, you can omit the quotation marks (e.g. count of MEMBERS Rooms). Constant text values, like the last name "Smith" must also be entered in quotation marks.

A constant value must follow the rules listed below, so DataEase can distinguish constants from Field Names, and differentiate different types of constants.

Rules for Constant Values

Field Type	Examples	Comments
Text	"James" "James Ivory"	Enclose in quotation marks.
Numeric String	20336577700	Do not type formatting characters.
Number, Currency	1234.12 12 -0.34	Do not type commas.
Date	12/10/99 11/04/1999	Type slashes.
Time	04:42:50	Type colons.
Choice	MASTER CARD	Type the value, not the choice number.

You can use parentheses to control the order in which mathematical operations are performed. When DataEase calculates a value, the operations in a Derivation Formula are performed from left to right. Multiplication and division take precedence over addition and subtraction. For example, the parentheses in the expression:

$(6 + 12) * 2$

..tell DataEase to perform the addition operation $(6 + 12)$ and then multiply the result by 2.

Parentheses are also used around any expression that follows a DQL function. For example, the **weekday** function in the expression:

`DEPARTURE DATE >= DEPARTURE DATE + (6-weekday(DEPARTURE DATE))`

..tells DataEase to determine the day of the week using the value from the DEPARTURE DATE field.

When multiple sets of parentheses appear in an expression, the operation of the innermost set of parentheses is performed first. In the above example, the inner function;

`Weekday(DEPARTURE DATE)`

..tells DataEase to determine the day of the week from the value in the DEPARTURE DATE field. The result is a number from 1-7. The second operation is to subtract the result of the first operation from 6. The new result is a number from -1 to 5. In the final operation, DataEase adds the result to the date in the DEPARTURE DATE field.

The final result is a Saturday that is greater than or equal to the date entered by the user. This formula is used to verify that the date entered into the DEPARTURE DATE field is always a Saturday.

The table below contains some sample Validation Formulas.

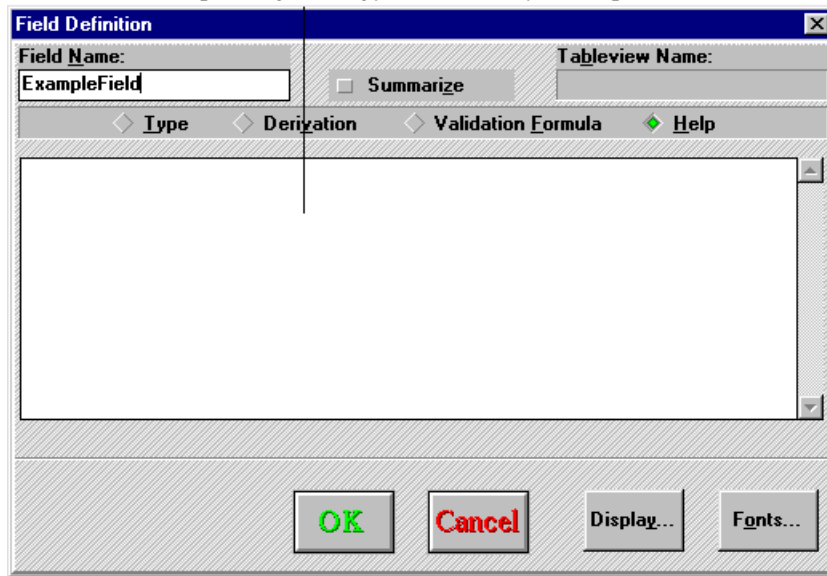
Sample Validation Formula

Form	Field	Validation Formula	Used to
PRICES	PRICE	PRICE >= 650.00	Set a lower limit of 650.00 for the PRICE field value.
PRICES	PRICE	PRICE between 650.00 to 2190.00	Require that the PRICE field value be between 650.00 to 2,190.00 (inclusive).
PRICES	PRICE	(PRICE >= 650.00) and (PRICE <= 2190.00)	Require that the PRICE field value be at least 650.00, but not more than 2,190.00.
PRICES	PRICE	PRICE between if(SEASON = April - June or SEASON = July - Sept, 650.00, 800.00) to if(SEASON = April-June or SEASON = July-Sept, 1890.00, 2190.00).	Specify two different ranges, dependent on the SEASON field value. If the SEASON is between April to September, the range is 650.00 to 1,890.00. Otherwise the range is 800.00 to 2,190.00.
MEMBERS	EXPIRATION DATE	EXPIRATION DATE between lookup "current date" to 12/09/99.	Limit the EXPIRATION DATE field value to fall between today's date and 12/09/99.
RESERVATIONS	PRICE	PRICE between lowest of "PRICES" "PRICE" to highest of "PRICES" "PRICE"	Use the lowest and highest values in the PRICE field in the related PRICES records to establish the range check.

Field Help Messages

When you click on Help, DataEase lets you define a Help message for the current field. You can define a Field Help message up to 1330 characters long.

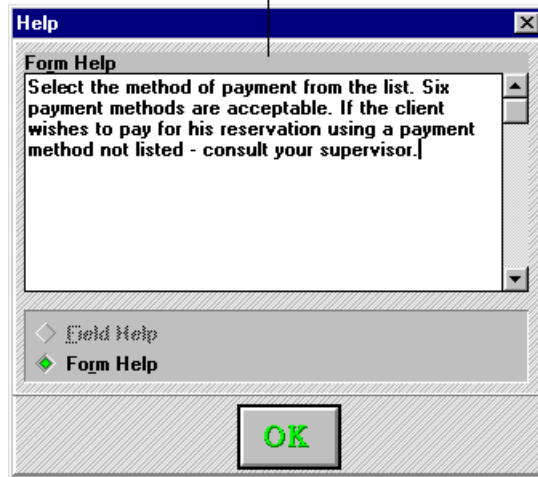
When you click on Help in Field Properties, DataEase displays an area in the dialog where you can type in a field Help message.



In User View, DataEase displays the Field Help message in the Status Bar. Although you can define a Help message up to 1330 characters long, the number of characters that DataEase displays on screen depends on your video resolution, which in turn is probably dependent on your monitor size.

To view the entire Field Help message, press Alt + f1. DataEase displays a pop-up Field Help window on the screen that contains the entire Help Message. To close the window again, click on OK.

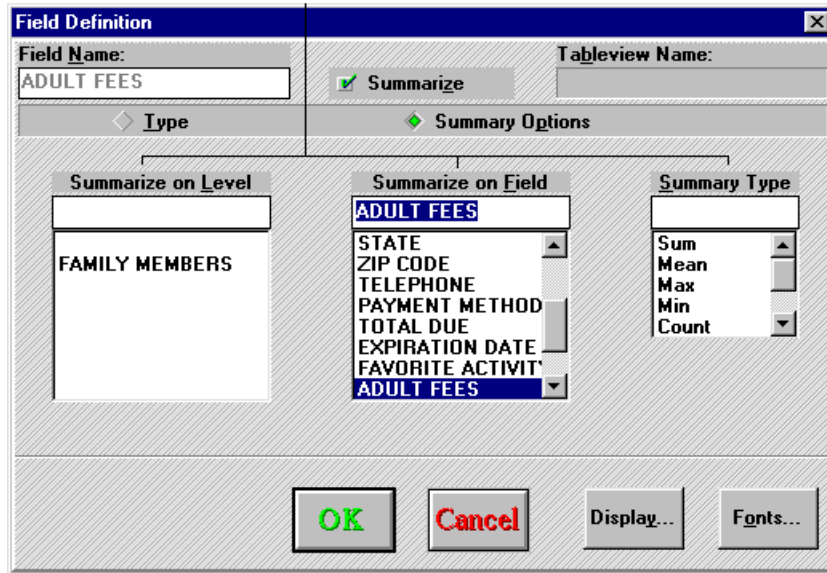
A typical Field Help message displayed in its pop-up screen.



The Summarize Field Property

When you click on Summarize, DataEase lets you specify statistical operators to derive the current field value.

When you click on Summarize in the Field Definition dialog, DataEase displays three list boxes that let you define a Summary field.



Summarize on Level displays the names of the current document and all documents that are nested in the current document. Choose the document that contains the field you want to summarize.

Summarize on Field displays the names of all the fields that appear on the highlighted document.

Summary Type lists all the statistical operators available for the highlighted field.

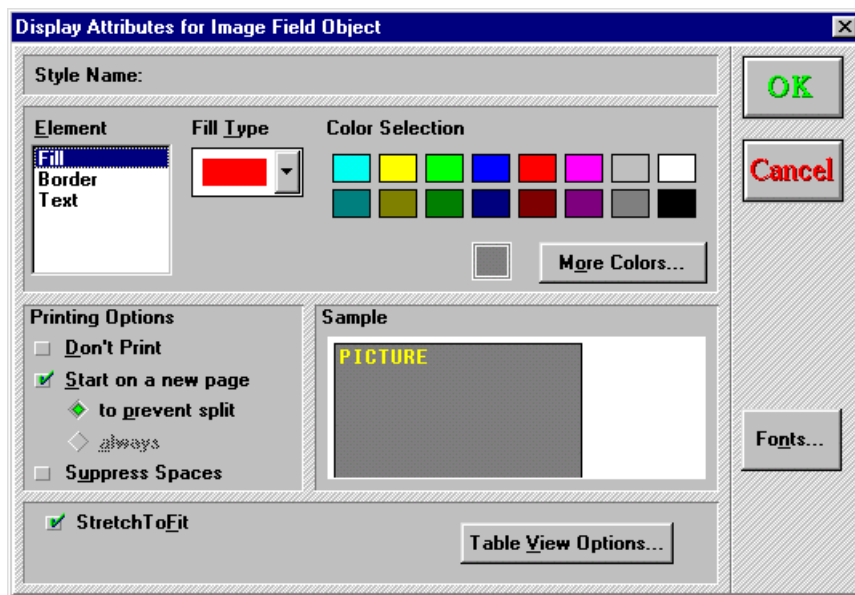
The table below contains some example statistical operators.

Statistical Operators Available in a Summary Field

Statistical Operators	Value Returned by the field	Corresponding Field Types	Examples (Using the TOTAL DUE Field on the RESERVATIONS form).
SUM	Total	Number, Currency	Total cost of all reservations
MEAN	Average	Number, Currency, Date, Time	Average cost of all reservations
MAX	Highest (Maximum)	Text, Number, Numeric String, Date, Currency, Time, Choice, Yes/No, Sequenced ID, Memo.	Highest cost of a reservation
MIN	Lowest (Minimum)		Lowest cost of a reservation
COUNT	Number of Records that satisfy a condition.		Count of all reservations
STDDEV	Standard Deviation (square root of the variance).	Number, Currency	Standard Deviation of all reservations
VARIANCE	Average of the squared difference between each item value and the mean value.	Number, Currency	Variance of all reservations
STDERR	Standard Error. (Standard deviation divided by the square root of the number of items).	Number, Currency	Standard Error of all reservations

Display Attributes Dialog Box

The **Display Attributes dialog** (explained earlier in this section) contains several options that are specific to Field objects. These options are explained below.



- **Element** lets you choose which part of the Field object you want to modify. Choose:
- **Fill** to change the color of the Field object. When you choose Fill, DataEase displays the Fill Type drop-down list.
- **Border** to change the color of the Field object border. When you choose line, DataEase displays the Line Type drop-down list.
- **Text** to change the color of the characters that make up the Field object.

Suppress Spaces prints adjacent Field objects without spaces in between the objects. Field objects are adjacent if the upper left corners of the objects are located on the same pixel line.

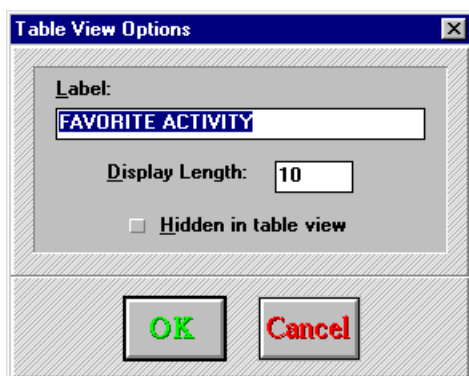
Size to fit tells DataEase to automatically resize the Field object according to the font specifications and Field Length.

Multiline lets you enter more than one line of data in the field.

Justification aligns values left, right, or centered in the field.

Fonts displays the **Font dialog** (explained earlier in the section).

Table View Options displays the Table View Options dialog, which lets you customize the appearance of a field (column) in Table View.



- **Label** lets you enter the name DataEase displays as the column heading. By default, DataEase uses the Field Name.
- **Display Length** lets you enter the number of characters in the column that DataEase displays on the screen. By default, DataEase uses the Field Length.
- **Hidden in Table View** tells DataEase not to display the column in Table View.

How to Create a Field Object

1. Choose Objects-Field. DataEase displays the Field cursor.
2. Click the mouse on the document to create a Field object of default size,
...or
Click and drag the mouse on the document to draw a Field object, When you let go of the mouse button, DataEase displays the Field Definition dialog.
3. Specify the field characteristics and click OK to close the dialog.

How to Create a Choice List Field

1. Choose Choice List as the Data Type on the Field Definition dialog.
2. To add a choice to the list, type the text for the first choice as you want it to appear on screen. Click Add. DataEase adds the last choice entered at the end of the list.
3. Type the List Name for the Choice list.
4. Specify the Visual Control for the field.

How to Create a Derivation Formula that Calculates a Field Value

1. Click on the Derivation radio button in the Field Definition dialog. DataEase displays the derivation Formula editor.
2. Enter the Derivation Formula manually, or click on the four list boxes and the numerical keypad to enter field names, relationships, functions, operators, and numbers in the formula box.
3. When you finish entering the formula, click OK. DataEase checks the spelling and syntax. If DataEase finds an error, it positions the cursor at the start of the invalid word or expression. If the formula is valid, DataEase saves it as part of the field definition.

How to create a Validation Formula for a Field

1. Click on the Validation radio button in the Field Definition dialog. DataEase opens the Validation Formula editor.
2. Enter the Validation Formula manually, or click on the four list boxes and the numerical keypad to enter field names, relationships, functions, operators, and numbers in the formula box.
3. When you finish entering the formula, click OK. DataEase checks the spelling and syntax. If DataEase finds an error, it positions the cursor at the start of the invalid word or expression. If the formula is valid, DataEase saves it as part of the field definition.

How to Create a Summary Field

1. Choose the Summarize option located near the Field Name on the Field Definition dialog. DataEase displays the Summarize options on the Field Definition dialog.
2. Specify the Summary Level (document), Summary Field (field), and Summary Type (statistical operator).
3. Click OK to close the dialog.

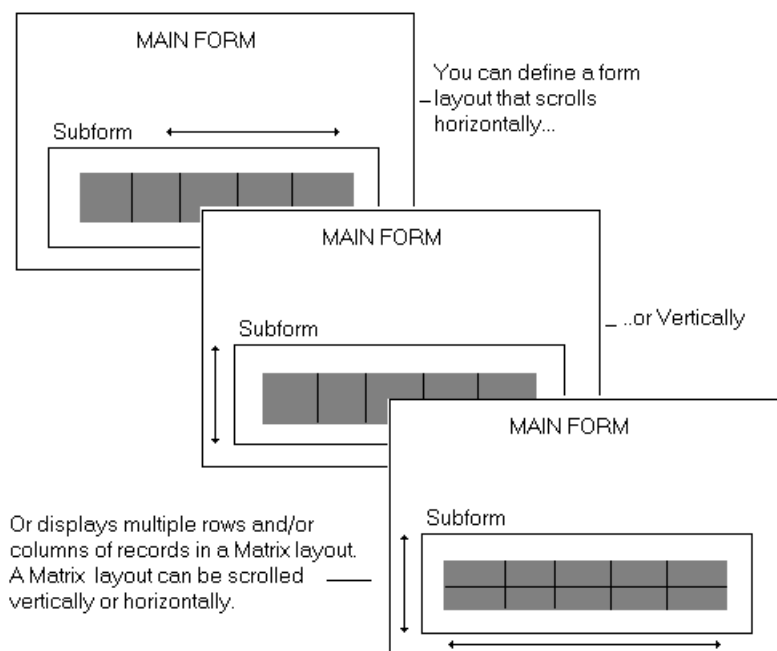
Creating a Subform Object

When you choose **Objects>>Subform**, DataEase activates the Subform tool, which lets you create a Subform object. A Subform is a form embedded in another form. You can place any Document object in a Subform, including another Subform. You can define any type of field on a Subform, including Custom fields. (e.g. Image, Check Box, Radio Button).

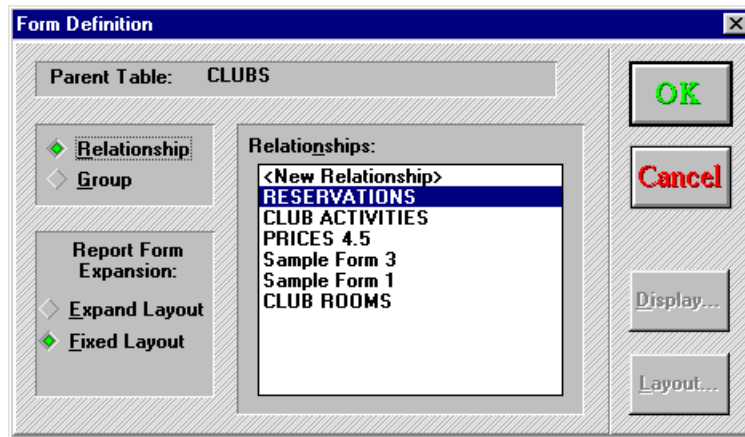
The combination of a Main form and one or more Subforms is called a **Multiform**. You can define up to 32 Subforms per Multiform (arranged vertically or side-by-side), or define Subforms within other Subforms (called **nested** Subforms).

DataEase lets you arrange the records in a form or Subform in many different layouts. Layouts are divided into three types. Horizontal Record Scroll, Vertical Record Scroll, and Matrix (multiple records in both directions).

The figure below illustrates the basic form layouts you can create in DataEase.



When you draw a Subform object on the document and release the mouse button, DataEase displays the Form Definition dialog. This dialog lets you choose which table provides the data displayed in the Subform.



If you choose:

- **Relationship**, the Subform displays data from the related table you specify. The related table can be any table that is related to the table associated with the parent form. For example, if the parent form displays MEMBERS records, the Subform can display the related records from the FAMILY MEMBERS table.
- **Group**, the Subform displays data from the current table (the table associated with the parent form), grouping records that have the same value in the group field that you specify. For example, if the parent form displays the STATE field from the MEMBERS table, the Subform can display the MEMBERS records from each state as a separate group.

If you double-click on an **existing** Subform, DataEase displays the Form Definition dialog with two minor changes. First, DataEase lets you view (but not modify) the Relationship or Group information. Second, DataEase activates the Display and Layout buttons that were previously grayed out.

Form Definition Dialog Options

Parent Table displays the name of the associated database table.

Relationship lets you choose a related table to use as the data source for the Subform. Highlight the table name and click OK.

To use a table that does not appear on the drop-down list, you must define a relationship between it and the current table. Choose **Application>>Relationships** to display the Relationships dialog.

In this example, the Main Form (MEMBERS) has only one field - STATE.

The MEMBERS records are automatically grouped by STATE.

MEMBERS				
STATE		CA		
LAST NAME	FIRST NAME	ADDRESS	CITY	STATE
Forrest	Peter	127 Summer	Los Angeles	CA
Richie	Kate	29 Gates	San Francisco	CA
Hagerty	Sara	989 Planters	Passadena	CA
Prescott	Daniel	74 Dogwood	Bloomfield	DE

Group lets you choose a field (from the current table) to group records in the Subform. Highlight the field name and click OK. Group is only available when you are defining a form over an existing table or report.

Report Form Expansion tells DataEase which records to display. Choose:

- **Expand Layout** to display all records.
- **Fixed Layout** to display a range of records that you specify in the **Layout Options dialog**. (explained earlier).

Display displays the **Display Attributes dialog**. (explained earlier).

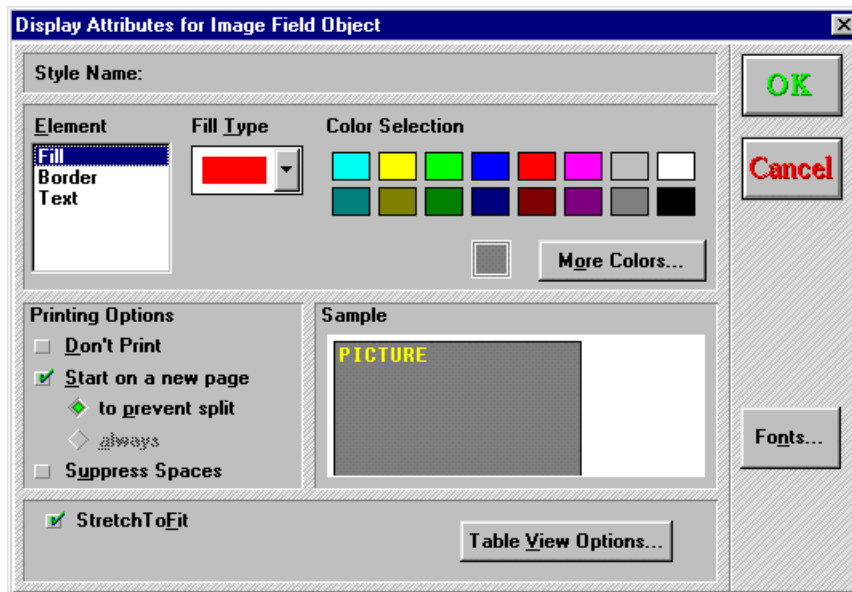
Layout displays the **Layout Options dialog** (explained earlier).

How to Create a Subform

1. Define a relationship between the Main form and the Subform (if none exists).
2. Choose **Objects>>Subform**. DataEase displays the Subform cursor.
3. Click the mouse on the document to create a Subform object of default size.
...or
Click and drag the mouse button. To draw a Subform object. When you release the mouse button, DataEase displays the Form Definitions dialog.
4. Choose a related table or grouping field and click OK. DataEase displays the Layout Options dialog.
5. Specify the field layout, record layout, appearance, and scroll direction for the Subform.
6. Click OK to close the Layout Options dialog

Creating a Button Object

When you choose **Objects>>Button**, DataEase activates the Button tool, which lets you create a Button object. A Button is a graphic object that performs an action (such as displaying or hiding the Toolbar) when it is clicked in user View.



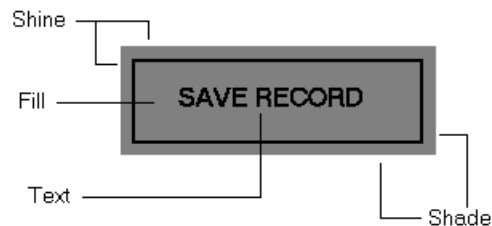
Display Attributes Dialog Options

The **Display Attributes Dialog** (explained earlier) contains several options that are specific to Button objects. These options are explained below.

Element lets you choose which part of the Button Object you want to modify. Choose:

- **Fill** to change the color of the Button area. When you select Fill, DataEase displays the Fill Type drop-down list.
- **Border** to change the color of the Button area border. When you select Border, DataEase lets you choose a border pattern from the Border Type drop down list.
- **Text** to change the color of the characters that make up the Button label.
- **Shade** to change the color of the lower and right edges of the Button object (usually a darker color).

- **Shine** to change the color of the upper and left edges of the Button object (usually a bright color).



Size to Fit tells DataEase to automatically resize the Button object according to the font specifications.

Actions displays the **Actions Selection dialog** (explained earlier).

Fonts displays the **Font dialog** (explained earlier).

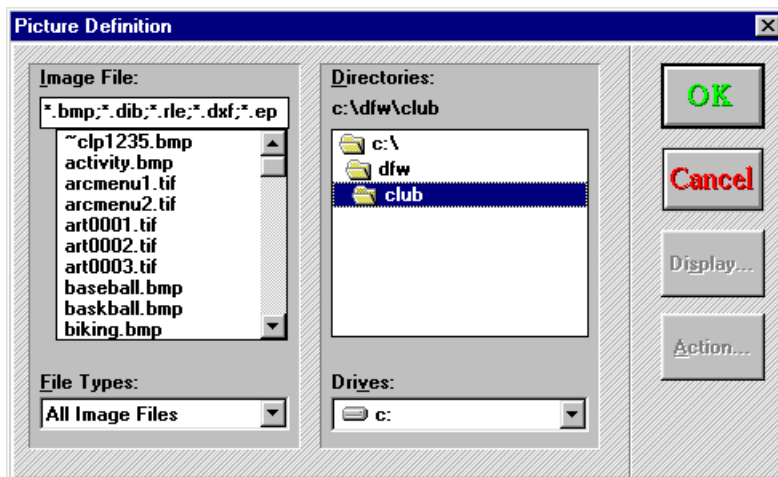
How to Create a Button Object

1. Choose Objects-Button. DataEase displays the Button cursor.
2. Click the mouse on the document to create a Button object of default size.
...or
Click and drag the mouse on the document to draw a Button object.
3. Delete the default label Action by pressing Del six times. Type the Button label that you want to display on the screen. When you finish typing characters, press Enter.
4. Select the Button object and choose Display from the Object Express menu. DataEase displays the Display Attributes for Button object dialog.
5. Specify the Button Display characteristics. Click on the Actions button. DataEase displays the Action Selection dialog.
6. Specify the Action associated with the Button and click OK.

Creating a Picture Object

When you choose **Objects>>Picture**, DataEase activates the Picture Tool, which lets you create a Picture Object. A Picture object is a background picture that appears the same on each record. It is attached to the Form, and not to individual Records within the form. Picture Objects can have Actions assigned to them, so that they behave like Buttons.

When you draw a Picture object on the document and release the mouse button, DataEase displays the Picture Definition dialog. This dialog lets you specify the filename and pathname of the Picture object.



Picture Definition Dialog Options

Image File lets you choose the name of the image you want to display.

File Types tells DataEase which file type format(s) to display in the Image File section of the dialog. To display all formats types, choose All Supported Formats. The image formats supported by DataEase are summarized in the table below.

Directories lets you choose the directory path containing the image you want.

Drives lets you choose a local or network drive as the source drive.

Display displays the **Display Attributes dialog** (explained earlier).

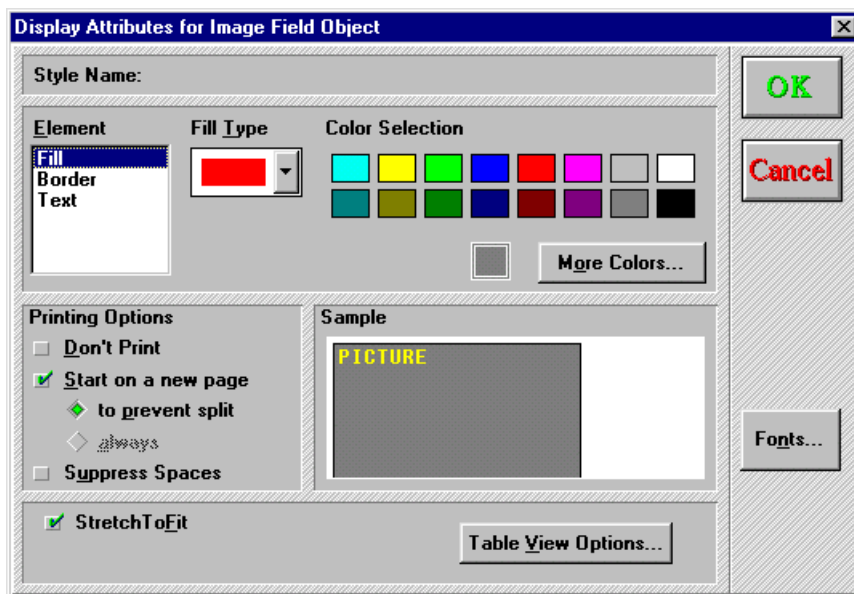
Action displays the **Action Selection dialog** (explained earlier).

Image File Formats Supported by DataEase

File Format	Extension	DataEase Supports
Bitmap	.BMP	All uncompressed images.
Graphic Interchange Format	.GIF	All non-interlaced images.
Windows Metafile	.WMF	All images that conform to the Aldus Placeable Metafile format.
PC PaintBrush	.PCX	All monochrome, 16 color, 24 color, or 24-bit color images.
Encapsulated PostScript	.EPS	All images (with or without display images). If the .EPS file contains a display image (e.g. a TIFF or Windows Metafile), DataEase can display the image On screen. If not, the image filename is displayed.
Tagged Image File Format (TIFF)	.TIF	All monochrome, grayscale, 256 color, and 24-bit uncompressed images. DataEase supports the following compressed formats: LZW, Packbits, modified Huffman, CCITT Group 3 ID, Group 3 2D, and Group 4.
Targa	.TGA	All 8, 16, 24 and 32-bit version 1 and 2 images. A Compressed version 1 takes longer to display than A compressed version 2.
Joint Photographic Experts Group	.JPG	All Images.
GEM Image	.IMG	All Images.
WordPerfect Graphics	.WPG	All Images
Digital Multi-page .PCX File	.DCX	All Images.
Autocad	.DXF	
PMG Images	.PMG	

Display Attributes Dialog Options

The **Display Attributes dialog** (explained earlier) contains several options that are specific to Picture Objects. These options are explained below.



Size to Fit tells DataEase to adjust the size of the picture to match the size of the image stored in the picture file.

Stretch to Fit tells DataEase to scale the picture to fit the entire frame, even if the image is distorted.

Actions displays the **Action Selection dialog** (explained earlier).

How to Create a Picture Object

1. Choose Objects-Picture. DataEase displays the picture cursor.
2. Click the mouse on the document to create a Picture object of default size.
...or
Click and drag the mouse on the document to draw a Picture object. When the mouse button is released, DataEase displays the Picture Definition dialog.
3. Specify the name of the image you want to display. After you specify an image, click OK.
4. Select the Picture object and choose Display from the Object Express menu. DataEase displays the Display Attributes for Picture Objects dialog.
5. Specify the Picture Display characteristics. Optionally, click on the Actions button. DataEase displays the Action Selection dialog. Specify the action associated with the picture and click OK.

Drawing Graphic Objects

The options in the second group on the Objects menu let you create the Graphic objects, such as straight line, rectangle, or ellipse. A Graphic object appears the same on each record.

When you choose **Objects>>Line**, DataEase activates the Line tool, which lets you draw a line object.

When you choose **Objects-Rectangle**, DataEase activates the Rectangle tool, which lets you draw a rectangle object.

When you choose **Objects-Ellipse**, DataEase activates the Ellipse tool, which lets you draw an Ellipse object.

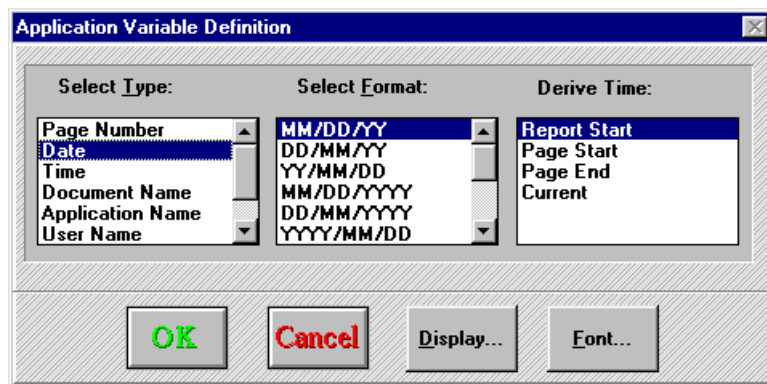
How to Draw a Line, Rectangle or Ellipse

1. Choose **Objects>>(line, rectangle or ellipse)**. DataEase displays the corresponding Graphic object cursor.
2. Click and drag the mouse to draw the Graphic object. When you release the mouse button, DataEase automatically displays the Display Attributes dialog for the corresponding object.
To create a 45° angle line, a square (rectangle) or circle (ellipse), Press Ctrl while drawing the object. When you are finished, release the mouse button and then the Ctrl key.
3. Specify the Graphic object characteristics and click OK to close the dialog.

Creating an Application Variable Object

When you choose **Objects>>Variable**, DataEase activates the Application Variable tool, which lets you create an Application Variable. An Application Variable object displays system-generated information (e.g. current date, current time, current page number), rather than displaying any data from the database itself.

When you draw an Application Variable object on the document and release the mouse button, DataEase displays the Application Variable Definition dialog. This dialog lets you specify the type and format of the Application Variable object.



Select Type lets you choose the type of variable you want to create. The variable types are summarized in the table below.

Variable Type	Used to....
Page Number	Display the current page number on the document.
Date	Display the current date.
Time	Display the current time.
Document Name	Display the name of the document.
Application Name	Display the name of the application.
User Name	Display the User Name (used to sign on to the application).

Select Format lets you choose the format for the currently highlighted variable. The variable formats are summarized in the table below.

Variable Format	Format Choices	How a Variable is Displayed
Date	MM/DD/YY	Month/Day/Year
	DD/MM/YY	Day/Month/Year
	YY/MM/DD	Year/Month/Day
	DD/MM/YYYY	Day/Month/4-digit Year
	MM/DD/YYYY	Month/Day/4-digit Year
Time	HH:MM	Hours:Minutes
	HH:MM: AM/PM	Hours:Minutes (followed by AM or PM, as appropriate).
	HH:MM:SS AM/PM	Hours:Minutes:Seconds (followed by AM or PM, as appropriate).

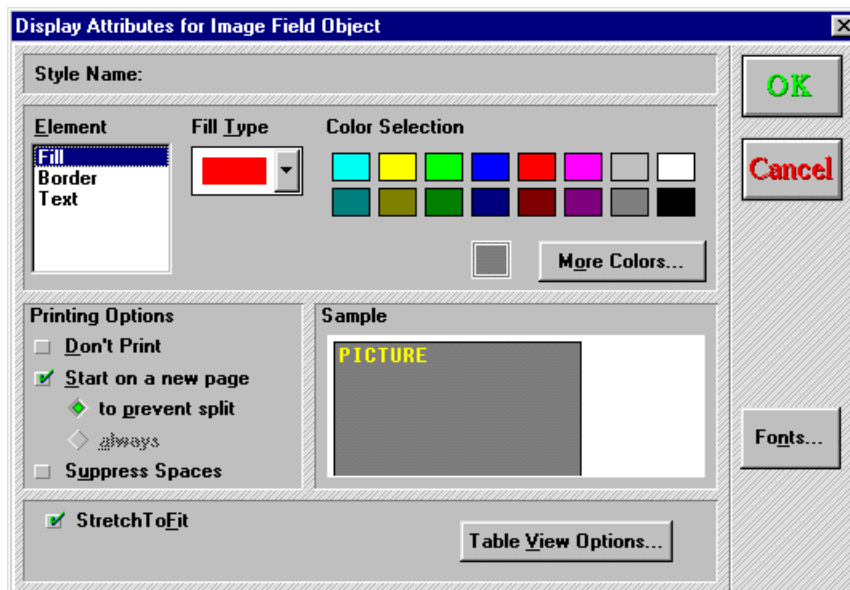
Derive Time lets you select at which point in time the **Time** or **Date** are to be calculated - when a report starts, ends, etc.

Display displays the **Display Attributes dialog** (explained earlier).

Font displays the **Font dialog** (explained earlier).

Display Attributes Dialog Options

The **Display Attributes dialog** (explained earlier) contains several options that are specific to Application Variable objects. These options are explained below.



Element lets you choose which part of the Application Variable object you want to modify. Choose:

- **Fill** to change the color of the Application Variable object area. When you select Fill, DataEase displays the Fill Type drop-down list.
- **Border** to change the color of the Application Variable object area border. When you select Border, DataEase lets you choose a border pattern from the Border Type drop down list.

Size to Fit tells DataEase to automatically adjust the size of the variable according to the font specifications and Application Variable type.

Fonts displays the **Fonts dialog** (explained earlier).

How to Create an Application Variable Object

1. Choose **Objects>>Variable**. DataEase displays the Application Variable cursor.
2. Click the mouse on the document to create a Application Variable object of default size.

...or

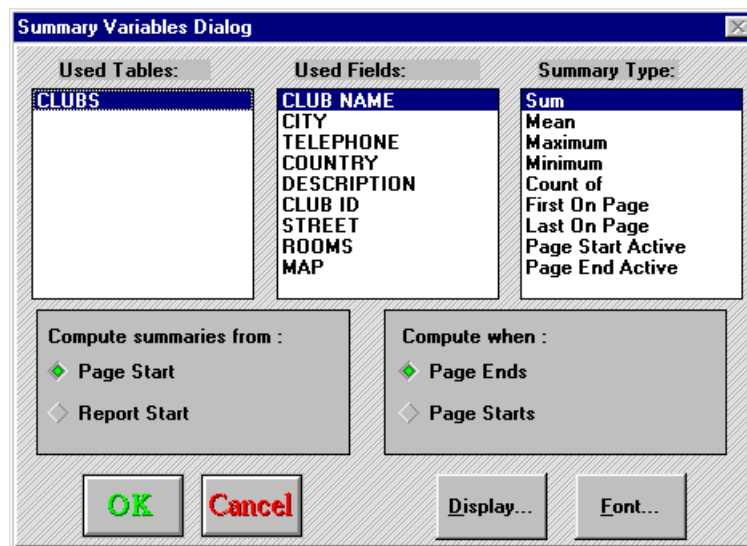
Click and drag the mouse on the document to draw a Application Variable object. When the mouse button is released, DataEase displays the Application Variable Definition dialog.

3. Specify the type and format for the Application Variable object and click OK to close the dialog.
4. Select the Application Variable object and choose Display from the Object Express menu. DataEase displays the Display Attributes for the Application Variable object dialog.
5. Specify the Application Variable characteristics and click OK.

Creating a Summary Variable Object

When you choose **Objects>>Summary**, DataEase activates the Summary Variable tool, which lets you create a Summary Variable object. A Summary Variable object displays summary information (e.g. page totals and running totals) based on the application data. You can create Summary Variable objects in Headers and Footers only.

When you draw a Summary Variable object on a Header or Footer and release the mouse button, DataEase displays the Summary Variables dialog. This dialog lets you specify the source and type of information for the Summary Variable object.



Summary Variable Dialog Options

Used Tables lets you choose a table as the information source for the Summary Variable. The table(s) that you may select are summarized in the table below.

Source Tables for Summary Variables	
Document Type	DataEase displays....
Form	Table(s) used by the Main form and its Subforms.
Report	Table(s) included in the Data Model.
Procedure	Table(s) included in the DQL Script.

Used Fields lets you choose a column in the selected table as the information source for the Summary Variable.

Summary Type lets you choose the type of summary information displayed in the Summary Variable. The values returned by different Summary Types are described in the table below.

Information displayed in Summary Variables

Summary Type	DataEase displays
Sum	Sum of values for the selected column. The range of values is specified by the Compute options (explained after this table).
Mean	Sum of values for the selected column divided by the total number of values. The range of values is specified by the Compute options (explained after this table).
Maximum	Highest value for the selected column. The range of values is specified by the Compute options (explained after this table).
Minimum	Lowest value for the selected column. The range of values is specified by the Compute options (explained after this table).
Count Of	Total number of values for the selected column. The range of values is specified by the Compute options (explained after this table).
First on Page	First value for the selected column that appears in the body of the document. If a value does not appear in the current body, the Summary Variable displays a blank value.
Last on Page	Last value for the selected column that appears in the body of the document. If a value does not appear in the current body, the Summary Variable displays a blank value.
Page Start Active	Last printed value for the selected column before the current body of the document is printed. This value may or may not appear in the current body. Use this option to indicate a Group Header.
Page End Active	Last printed value for the selected column after the current body of the document is printed. This value may or may not appear in the current body. Use this option to indicate changes in a Group Header.

Compute Summaries from tells DataEase the starting value of the range used to calculate the Summary Variable. Choose:

- Page Start to indicate the first value on the current body of the document. Select this option to display Page Totals.
- Report Start to indicate the first value on the report. Select this option to display running (cumulative) totals

Compute When tells DataEase whether or not to calculate the Summary Variable using the value(s) in the current body of the document, Choose:

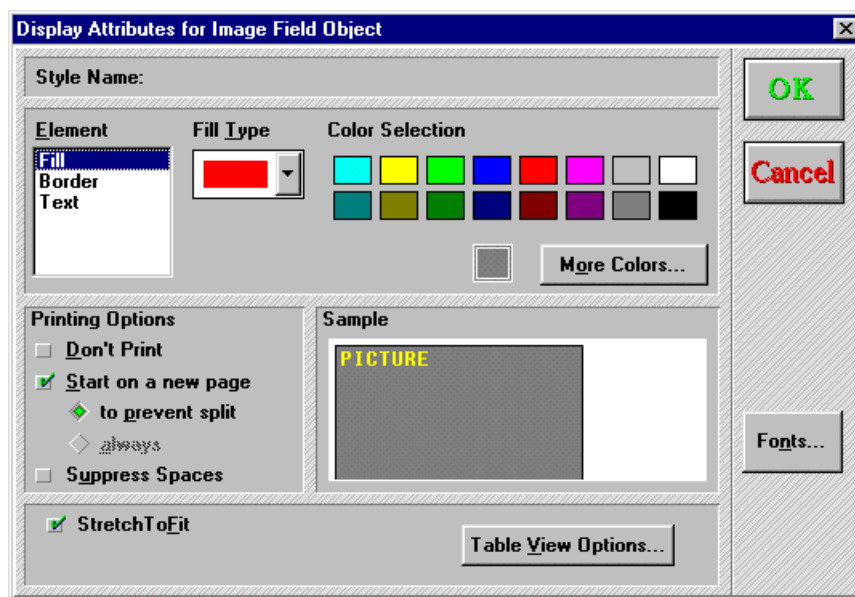
- Page Ends to include the value(s) in the current body of the document. This is the default option.
- Page Starts to exclude the value(s) in the current body of the document. Select this option to display a running (cumulative) total from the previous page.

Display displays the **Display Attributes dialog**.

Font displays the **Font dialog** (explained earlier).

Display Attributes Dialog Options

The **Display Attributes dialog** (explained earlier) contains several options that are specific to Summary Variable objects. These options are explained below.



Element lets you choose which part of the Summary Variable object you want to modify. Choose:

- **Fill** to change the color of the Summary Variable object area. When you select Fill, DataEase displays the Fill Type drop-down list.
- **Border** to change the color of the Summary Variable object area border. When you select Border, DataEase lets you choose a border pattern from the Border Type drop down list.
- **Text** to change the color of the characters that make up the Summary Variable object.

Size to Fit tells DataEase to automatically adjust the size of the variable according to the font specifications and Summary Variable type.

Justification aligns values left, right, or centered in the field.

Fonts displays the **Fonts dialog** (explained earlier).

How to Create a Summary Variable

1. Choose **Objects>>Summary**. DataEase displays the Summary Variable cursor. Click the mouse on the document to create a Summary Variable of default size.
...or
Click and drag the mouse on the document to create a Summary Variable object. When you release the mouse button, DataEase displays the Summary Variables dialog.
2. Select a table and column as the information source for the Summary Variable.
3. Select the type of information you want to display in the Summary Variable. If you select a statistic (sum, mean, maximum, minimum, count of), use the Compute options to indicate the starting value of the range and whether or not to include the value(s) in the current body of the document. Click OK to close the dialog.
4. Select the Summary Variable object and choose Display from the Object Express menu. DataEase displays the Display Attributes for Summary Variable object dialog.
5. Specify the Summary Variable characteristics and click OK.

How to Create a Page Total

1. Select a table and column in the Summary Variables dialog.
2. Select a statistic (sum, mean, maximum, minimum, count of). Choose Compute summaries from Page Start and Compute when Page Ends. Click OK to close the dialog.
3. Select the Summary Variable object and choose Display from the Object Express menu. DataEase displays the Display Attributes for Summary Variables object dialog.
4. Specify the Summary Variable display characteristics and click OK.

How to Create a Running Total

1. Select a table and column in the Summary Variables dialog.
2. Select a statistic (sum, mean, maximum, minimum, count of). Choose Compute summaries from Report Start and Compute when Page Ends. Click OK to close the dialog.
3. Select the Summary Variable object and choose Display from the Object Express menu. DataEase displays the Display Attributes for Summary Variables object dialog.
4. Specify the Summary Variable characteristics and click OK.

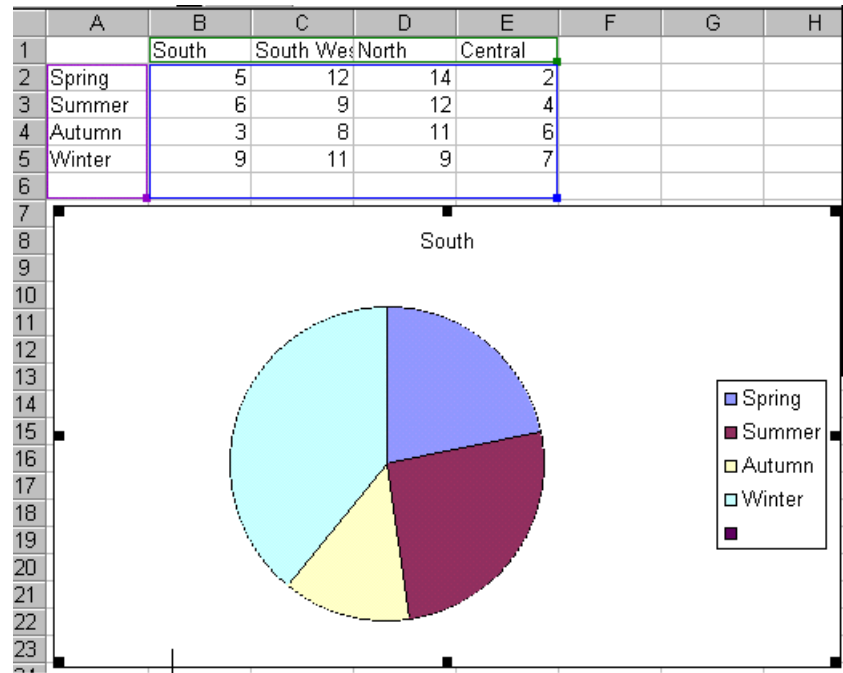
How to Display a Running Total from a Previous Page

1. Select a table and column in the Summary Variables dialog.
2. Select a statistic (sum, mean, maximum, minimum, count of). Choose Compute summaries from Report Start and Compute when Page Starts. Click OK to close the dialog.
3. Select the Summary Variable object and choose Display from the Object Express menu. DataEase displays the Display Attributes for Summary Variables object dialog.
4. Specify the Summary Variable display characteristics and click OK.

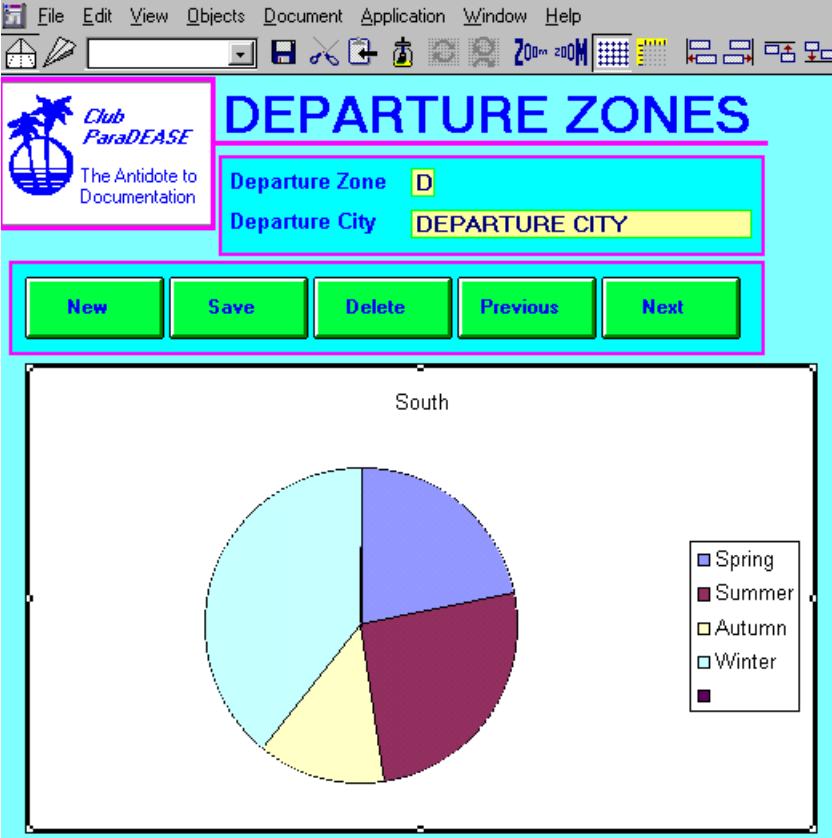
Creating an OLE Object

When you choose **Objects>>OLE**, DataEase activates the OLE tool, which lets you create an OLE object. An OLE Object is generated by an external software application, such as Microsoft Excel, and either **embedded** or **linked** in a container document, such as a DataEase form.

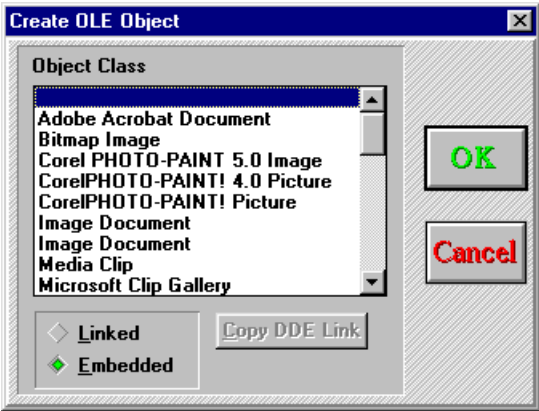
An embedded object is created from data in the container document, while a linked object is created from data in a document generated by the external software application.



This Excel chart is easily LINKED or EMBEDDED in a DataEase form.



When you create an OLE object on the document and release the mouse button, DataEase displays the Create OLE Object dialog. This dialog lets you choose which type of OLE object you want to link or embed.



Create OLE Object Dialog Options

Object Class tells DataEase what type of object you want to link or embed in the current document. DataEase lists all the software applications on your computer that may be used to create OLE objects. A typical list might include:

- **Excel Chart** - to link or embed a Microsoft Excel chart.
- **Excel Worksheet** - to link or embed a spreadsheet created in Microsoft Excel.
- **Package** - to embed a package. A package is a custom-defined OLE object that invokes another OLE object, executable program, or command line from within a DataEase document.
- **Paint Picture** - to link or embed a picture created in Microsoft Paint.
- **Sound** - to play a sound file (if your computer has a multimedia sound card).

Linked lets you link a new or existing object to a DataEase document.

Copy DDE Link displays the Copy Special dialog. The Copy Special dialog lets you create a dynamic data exchange (DDE) link between DataEase data and a Windows application document. This option is enabled only if you select Linked.

Embedded lets you embed a new or existing object in a DataEase document.

How to Create an OLE Object

1. Choose **Objects>>OLE**. DataEase displays the OLE cursor.
2. Click the mouse on the document to create an OLE object of default size.
...or
Click and drag the mouse on the document to create an OLE object of the required size. When you let go of the mouse button, DataEase displays the Create OLE Object dialog.
3. Select an Object Class (the type of object you want to create). Choose Linked or Embedded and click OK. DataEase opens the source application corresponding to the object type you selected.
4. Use the source application to create the object.

If you create a **linked** object, choose **File>>Save As** in the source application, and save the source document under a new name. Now select the data in the source document that you want to paste into the DataEase document, and choose **Edit>>Copy**. Now choose **File>>Exit**. DataEase displays the OLE Paste dialog. Click OK to paste the OLE object and return to DataEase.

If you create an **embedded** object, choose **File>>Update** in the source application. Then choose **File>>Exit** to return to DataEase.

Adding Sound and Video to a Document

To enhance your application with multimedia, DataEase lets you add pre-recorded sound and video clips to any form, report, procedure or menu document.

You can embed pre-recorded sound and video clips in two ways, by using either;

- Windows built-in OLE capability. OLE displays the sound (.WAV file) or video clip (.AVI file) in a window with default controls. This method of adding multimedia to a DataEase document is explained later in this section.
- A DataEase Custom-Defined Function (CDF). A CDF lets you hide the default OLE controls and create custom controls using DataEase buttons. This method of adding multimedia to a document is explained in Appendix B.

The figure below shows a DataEase form with an embedded sound clip and video clip.

CLUBS Previous Next

Club Name: Telephone:

Street:

City: Country:

Description:
Playa Blanca, located 120 miles south of Puerto Vallarta on Mexico's sunny Pacific coast, is our hottest winter holiday vacation spot. Enjoy snorkeling, deep-sea fishing, and peppery cuisine.

Activities

Baseball Waterski Biking Hangliding Snorkel Theater

Club ID: Rooms:

Embedded Sound Clip Embedded Video Clip

To embed a sound (.WAV) file in a document using OLE, you must have Windows Sound Recorder or Media Player installed on your computer. To play a sound file, you must have a Windows-compatible sound card or speaker driver such as Microsoft's SPEAKER.DRV file installed on your computer.

To embed an OLE video (.AVI) clip in a document, you must have both Video for Windows and Media Player installed on your computer.

See your Windows documentation for information on installing the Windows Sound Recorder and Media Player applications.

The steps below describe how to add a help message (.WAV file) to the ACTIVITIES form.

How to Add a Sound Clip to a Document

1. Without exiting DataEase, open another Window and from it start the Sound Recorder application by double-clicking on the Sound Recorder icon (Sound Recorder should be in **Windows >>Accessories**, or **Windows>>Accessories>>Entertainment**). Sound Recorder opens.
2. Choose **File>>Open** from the Sound Recorder File menu. Sound Recorder displays the Open dialog.
3. Locate the C:\DEWIN\CLUB directory and highlight the ACTHELP.WAV file. Click OK to load the .WAV file.
4. Choose **Edit>>Copy** to copy the .WAV file to the Clipboard.
5. Return to the DataEase ACTIVITIES form by pressing Alt + Tab one or more times.
6. Switch to Designer View by clicking the Designer View icon.
7. Choose **Edit>>Paste** to paste the sound file into the ACTIVITIES form. DataEase displays the hand pointer.
8. Click and drag the sound object, positioning it above the Activity picture. DataEase pastes the Sound Recorder icon into the ACTIVITIES form to indicate the presence of an embedded sound file.

How to Add a Video Clip to a Document

1. Without exiting DataEase, open another Window and from it start the Media Player application by double-clicking on the Media Player (Media Player should be in **Windows >>Accessories**, or **Windows>>Accessories>>Multimedia**). Media Player opens.
2. Choose **File>>Open** from the File menu. Media Player displays the Open dialog.
3. Locate the C:\DEWIN\CLUB directory and highlight the BORABORA.AVI file. Click OK to load the .AVI file.
4. Choose **Edit>>Copy** to copy the .AVI file to the Clipboard.
5. Return to the DataEase CLUBS form by pressing Alt + Tab one or more times.
6. Switch to Designer View by clicking the Designer View icon.
7. Choose **Edit>>Paste** to paste the video file into the CLUBS form. DataEase displays the hand pointer.
8. Click and drag the video object, positioning it above the Activity picture. DataEase pastes the video - paused at the first frame - into the CLUBS form to indicate the presence of an embedded video file.

How to Play an Embedded Sound Clip

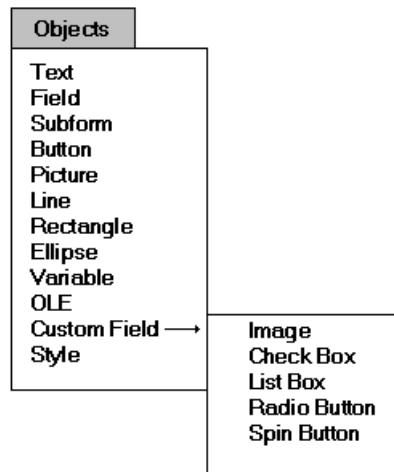
To listen to a sound clip embedded in a DataEase document, double-click on the Sound Recorder microphone object. DataEase plays the .WAV file associated with the current record.

How to Play an Embedded Video Clip

To play a video clip embedded in a DataEase document, double-click on the Video window. microphone object. DataEase plays the .AVI file associated with the current record.

Creating a Custom Field

When you choose **Objects>>Custom Field**, DataEase displays a cascade menu that lets you create one of five custom fields.



Custom Field Cascade Menu Options

Image lets you create an Image Field object. An Image field object accepts a filename and displays graphic data in User View (e.g. the pictures of different activities displayed in the CLUBS Multiform). Unlike a Picture object, which is part of a document layout, the data in an Image field is linked to and displayed as part of a record.

Check Box lets you create a Field object displaying choices in a single box that toggles between Yes (selected) and No (deselected). The field contains a blank value (default) until you click on the check box.

When you create a Check Box field, DataEase displays the Field Name as the caption to the right of the check box.

Note: If you want a check box field to contain a No default value (instead of a blank default value) choose Derivation in the Field Definition dialog and type No in the Derivation formula.

List Box lets you create a Field object that displays choices in a drop-down list.

Radio Buttons lets you create a Field object that displays choices as radio buttons.

Spin Button lets you create a Field object that displays numeric values. You can type in a value or use the vertical arrow controls to display a value.

Image Fields and Picture Objects

Do not confuse Picture Objects and Image Fields.

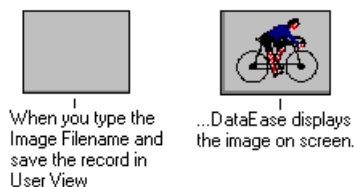
A **Picture Object** is just a background picture - the picture stays the same, no matter how many records you have in a form. The Picture Object is part of the form itself.

An **Image Field** contains an image which is specific to individual records in the form. For example, an EMPLOYEE form could store a picture of each individual staff member in an Image field.

Image Fields

When you define an Image Field object on the document and release the mouse button, DataEase displays the Field Definition dialog. To define an Image Field, you only need to type the Field Name and set the Length controls. The other options on the Field Definition dialog are set to appropriate default values (e.g. Data Type is set to Text and Visual Control is set to Image Field).

The field length must be at least 12 digits long to accommodate an 8-digit filename, a period (.), plus a 3-digit file extension. If you plan to enter a path with nested subdirectories with each filename, you must increase the length of the field.



DataEase searches for image files in the:

- (1) Application directory.
- (2) DataEase Program directory.
- (3) Image Search Path.

To change the image search path, or add more directories to the default Image Search path, choose **Application>>Preferences** and enter the desired path(s) in the Image Field Search Path text box.

Note: Because the data for an Image Field is stored as a text value (the filename of the graphic file) DataEase replaces the Image fields in the original document with Text fields in generating a new layout.

To restore the Image field, you must delete the text fields and recreate the Image fields, selecting a Field Name from the drop-down list box in the Field Definition dialog.

DataEase supports the following Image file formats.

Image File Formats Supported by DataEase

File Format	Extension	DataEase Supports
Bitmap	.BMP	All uncompressed images.
Graphic Interchange Format	.GIF	All non-interlaced images.
Windows Metafile	.WMF	All images that conform to the Aldus Placeable Metafile format.
PC PaintBrush	.PCX	All monochrome, 16 color, 24 color, or 24-bit color images.
Encapsulated PostScript	.EPS	All images (with or without display images). If the .EPS file contains a display image (e.g. a TIFF or Windows Metafile), DataEase can display the image On screen. If not, the image filename is displayed.
Tagged Image File Format (TIFF)	.TIF	All monochrome, grayscale, 256 color, and 24-bit uncompressed images. DataEase supports the following compressed formats: LZW, Packbits, modified Huffman, CCITT Group 3 ID, Group 3 2D, and Group 4.
Targa	.TGA	All 8, 16, 24 and 32-bit version 1 and 2 images. A Compressed version 1 takes longer to display than A compressed version 2.
Joint Photographic Experts Group	.JPG	All Images.
GEM Image	.IMG	All Images.
WordPerfect Graphics	.WPG	All Images
Digital Multi-page .PCX File	.DCX	All Images.
Autocad	.DXF	
PMG Images	.PMG	

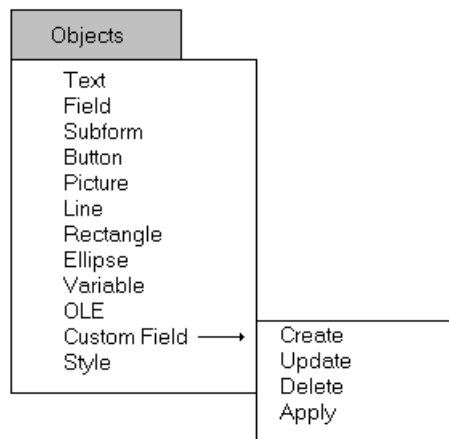
How to Change an Image Field

1. Choose **Objects>>Custom Field>>Image field**. DataEase displays the Image Field cursor.
2. Click the mouse on the document to create an Image Field object of default size.
...or
Click and drag the mouse on the document to create an Image Field object of the desired size. When you release the mouse button, DataEase displays the Field Definition dialog.
3. Type a Field Name.
4. Specify the Field Length. The Field Length must be at least 12 characters long. If you want to include drive letters and directory names, then the Field Size must be increased accordingly.
5. Click OK to close the dialog.

Creating, Modifying and Applying an Object Style

When you choose **Objects>>Style**, DataEase displays a cascade menu that lets you create, modify, and apply an Object Style.

An Object Style is a named set of display attributes that can be assigned to a Document object. Instead of individually changing the display attributes for each object, you can define a set of display attributes, give it a style name, and then apply it to several objects with a single mouse click. An Object Style is defined for a particular type of object (Text style, Field style, etc). For example, a Field style can only be applied to Field objects.



Style Cascade Menu Options

Create lets you create an Object Style for any Document object (Text, Field, Subform, Button, Line, Rectangle, Ellipse, Application Variable, Image Field, Record, and Form).

Update lets you modify (overwrite) an Object Style.

Delete lets you delete an Object Style.

Apply lets you apply an Object Style to an object.

When you select an object in Designer View, DataEase loads the list of all the styles that can be assigned to that object into the Object Style drop-down list on the Designer Toolbar.

The figure below shows the MEMBERS form from Club ParaDEASE in Designer View, with the Object Style drop-down list shown.

The Object Style drop-down list, here displaying the various styles that can be applied to the selected Button object.



If you subsequently modify the Object Style, every object that has been assigned that style is immediately updated to reflect the new style definition. This feature makes it easy to create attractive documents that use a uniform set of colors, fonts, patterns, and other display attributes throughout an application.

Style Sheets

A Style Sheet is a named set of Object Styles, which can be assigned to one or more documents. DataEase includes several predefined Style Sheets (including the Style Sheet for Club ParaDEASE). These Style Sheets are stored in the C:\DEWIN\STYLES directory by default. (Your own PC may use a different directory structure).

By defining a set of display attributes as an Object Style, and saving several Object Styles in a Style Sheet, you can quickly change the appearance of a document with just a few keystrokes.

To use Style Sheets effectively, make sure that every Style Sheet contains a set of identically named Object Styles for each type of object. Then when you change a document's Style Sheet, you can automatically assign each object the attributes associated with the same Object Style name. For example, if you create a new Style Sheet with a Text Style, all Text objects assigned the Text style in the original Style Sheet are assigned the identically named Text style in the new Style Sheet.

The table below lists all the style names in the Normal (default) Style Sheet. The default style for each object is printed in bold.

Form Object	Record Object	Field Object	Variable Object
Form Table Grid Form	Record Record (white) Table Grid Record	Field Field (big) Field (red) Field (small) Field (text) Table Grid Field	Application Variable AppVar (red) AppVar (small) AppVar (text)

Text Object	Button Object	Picture Object	Line Object
Table Grid Text Text Text (big) Text (blue/white) Text (red/white) Text (slate/white) Text (small) Text (title) Text (white)	Button Button (blue) Button (clear) Button (dark gray) Button (green) Button (red) Button (std. gray) Engraved Outline	Image Image (frame) Image (wide frame)	Line Line (dashed) Line (shade) Line (shine) Line (thick) Line (thicker) Line (thickest)

Box Object	Ellipse Object	Image Field Object
Box Box (no border) Box (no fill) Box (wide border)	Ellipse Ellipse (no border) Ellipse (no fill) Ellipse (wide border)	Image Field Image Field (border)

Create a Style Dialog Options

When you choose **Objects>>Style>>Create**, DataEase displays the Create a Style dialog, which lets you create an Object Style. (you must select an object first).

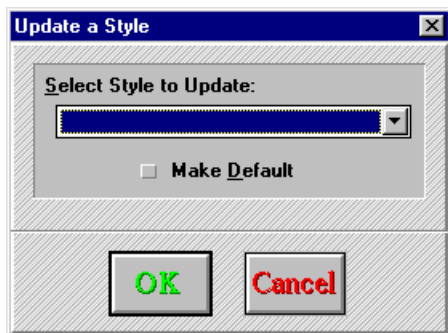


Style Name lets you specify a name for the current style.

Make Default tells DataEase to use the current style as the default style. DataEase automatically assigns the default style to each new object you create.

Update a Style Dialog Options

When you choose **Objects>>Style>>Update**, DataEase displays the Update a Style dialog, which lets you modify an existing Object Style.

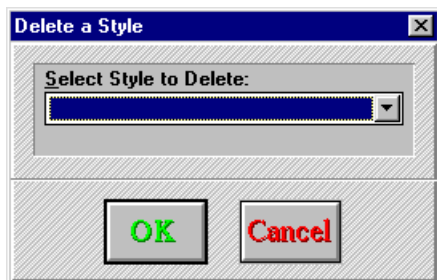


Select Style to Update tells DataEase which style to update with the new attributes you specify.

Make Default tells DataEase to use the updated style as the default style. DataEase automatically assigns the default style to each new object you create.

Delete a Style Dialog Options

When you choose **Objects>>Style>>Delete**, DataEase displays the Delete a Style dialog, which lets you delete an existing Object Style.



Select Style tells DataEase which style to delete from the current Style Sheet.

Apply a Style Dialog Options

When you choose **Objects>>Style>>Apply**, DataEase displays the Apply a Style dialog, which lets you apply an Object Style to a selected object(s).



Select Style to Apply tells DataEase which style to apply to the selected object(s).

How to Create an Object Style

1. Highlight the object on the screen that you want to use as a template for the style.
2. If you want to modify the appearance of the object before you create the style, select the object and choose Display from the Object Express menu to bring up the Display Attributes dialog. When you have finished modifying the display attributes, click OK.
3. Choose **Objects>>Style>>Create**. DataEase displays the Create a Style dialog.
4. Type a name for the style and click OK. DataEase assigns the object the new style.

How to Update an Object Style

1. Highlight the object on the screen that you want to update.
2. If you want to modify the appearance of the object before you create the style, select the object and choose Display from the Object Express menu to bring up the Display Attributes dialog. When you have finished modifying the display attributes, click OK.
3. Choose **Object>>Style>>Update**. DataEase displays the Update a Style dialog. DataEase automatically displays the name of the style used by the highlighted object.
4. Choose the name of the style you want to update from the drop-down list that DataEase displays.
5. Click OK. DataEase displays all objects using the updated style with the new attributes that you defined.

How to Delete an Object Style

1. Highlight the object on the screen that uses the style you want to delete.
2. Choose **Objects>>Style>>Delete**. DataEase displays the Delete a Style dialog. DataEase automatically displays the name of the style used by the highlighted object.
3. Choose the name of the style you want to delete from the drop-down list DataEase displays.
4. Click OK. DataEase applies the default style to all objects that used the deleted style.

How to Apply a Style to an Object

1. Highlight all objects that will be assigned the same style.
2. Choose **Objects>>Style>>Apply**. DataEase opens the Apply a Style dialog.
3. Choose the name of the style you want to apply to the object(s) from the drop-down list DataEase displays. DataEase now displays the highlighted object(s) using the style you specified.

Chapter 7 : The Document Menu

The Document Menu options are used to view and change the default options that control how a document looks on the screen, how it prints, who can access it, and which Database tables, columns, and relationships provide the data displayed in the document. You can also specify a document's display, print, and security controls.

Query By Model, a powerful tool that lets you view a document's underlying data structure, is also accessed from this menu. You can use Query By Model to quickly create or modify a document, instead of manually drawing each object on the screen.

Each menu option is summarized in the table below, followed by a detailed explanation.

Menu Option	Keyboard Equivalent	Menu Option is Used to...
Properties	Alt + D, P	View and/or select a document's Style Sheet, type, and Whether it defines or uses a table. Also used to set the initial window size, position, and the initial action when the document is opened in User View.
Print Options	Alt + D, R	Set a document's default printer destination, print Quality, page size, and margins.
Security	Alt + D, S	Set the minimum security level required to create, view, modify, and delete records, and view and modify the layout.
Query By Model	Alt + D, Q	Create a document or view or change a document's data structure.
Set Tab Order	Alt + D, T	Determine in which sequence the cursor moves through the fields and buttons on a form.
Default Tab Order	Alt + D, F	Restore the default Tab Order, which begins in the upper left corner and ends in the lower right corner of the form.
Performance	Alt + D, F	Reorder the records in a table to improve the speed Of searches, QBM.reports, and DQL Procedures.
Custom Menu	Alt + D, M	Customize a document's User View pull-down menus. Also used to copy a set of custom pull-down menus to Another document.
Custom Toolbar	Alt + D, B	Display or hide the Toolbar in User View.

Defining Document Properties

When you choose **Document>>Properties**, DataEase displays the Document Properties dialog. This dialog lets you view and change the Type of Document, Style Sheet, Windows Options, and User View Options.

When you click on Summarize in the Field Definition dialog, DataEase displays three list boxes that let you define a Summary field.

Document Properties Dialog Options

Type of Document lets you select the type of document from four choices. Choose: **Form**, **Report**, **Menu** or **Procedure**.

When the document is a form that defines a table, choose:

Defines Table to indicate the field definitions in the document that define the columns in the associated database table. If unchecked, the document uses the columns in the associated database table and they cannot be changed from this document.

When the document is a report, choose one of the following:

- **Print** sends the data to the print destination selected in the Print Options dialog.
- **Live** sets the Initial Action to be other than print (explained later).

Style Sheet displays the name of the document's current Style Sheet. To change the document's Style Sheet, select a different Style Sheet from the drop-down list box.

Window Placement displays the opening size and location of the document window. Choose:

- **Current** changes the numbers in the Width and Height boxes to reflect the document window's current size. The numbers in the X and Y boxes locate its current position on the screen.
- **Size** displays the width and height of the window in pixels.
- **Location** displays the distance in pixels from the left edge of the Workspace (X) and from the top edge of the Workspace (Y).
- **Open Maximized** displays the document in a fully maximized window.

User View Options lets you choose which actions the document performs when opened in User View, and also changes several important default record entry settings. (When a report is defined to print when opened, these options are not available).

Initial Action lets you choose the type of record to display when you open the document in User View. Choose:

- **New Record**, to initially display a blank record.
- **First Record**, to initially display the first record in the form.
- **Last Record**, to initially display the last record in the form.
- **Table View**, to initially display the records in Table (rather than Form) View.
- **Query by Form** to initially display a subset of the records in the document. (If you select an initial action other than QBF, you can choose Query>>Select Records to enter selection criteria to filter the data in the report).
- **Prevent Data Entry** creates a read-only document.
- Clear form after entering a record automatically displays a blank record after a record has been saved.
- **Suppress automatic TAB when a field fills** lets you specify whether or not the cursor automatically moves to the next field when the current field is filled in. Choose this option to suppress the automatic tab.
- **Preserve old CURRENT DATE, etc on Modify** lets you specify whether you want the current functions to be updated each time a record is modified. Choose this option if you do not want the current functions updated when a record is modified.
- **User Help** lets you define a custom Help message for the document. To display the Help message in User View, choose **Help>>User Help**.

How to Change the Form that Defines a Table

1. Open the form that defines the table. (To find out which form defines the table, maximize the Application Catalog).
2. Choose **Document>>Properties**. DataEase opens the Document Properties dialog.
3. Click on the Defines Table check box to deselect it.
4. Click OK to close the dialog.
5. Open the form that you want to define the table.
6. Click on the Defines Table check box to select it.
7. Click OK to save the dialog.

How to Change the Size of a Document's Window

1. Choose **Document>>Properties**. DataEase displays the Document Properties dialog.
2. Click on the Current button and check Open Maximized, or fill in the Width and Height boxes to indicate the desired size of the document window.
3. Click OK. DataEase saves the opening settings.

How to Change a Document's initial Action

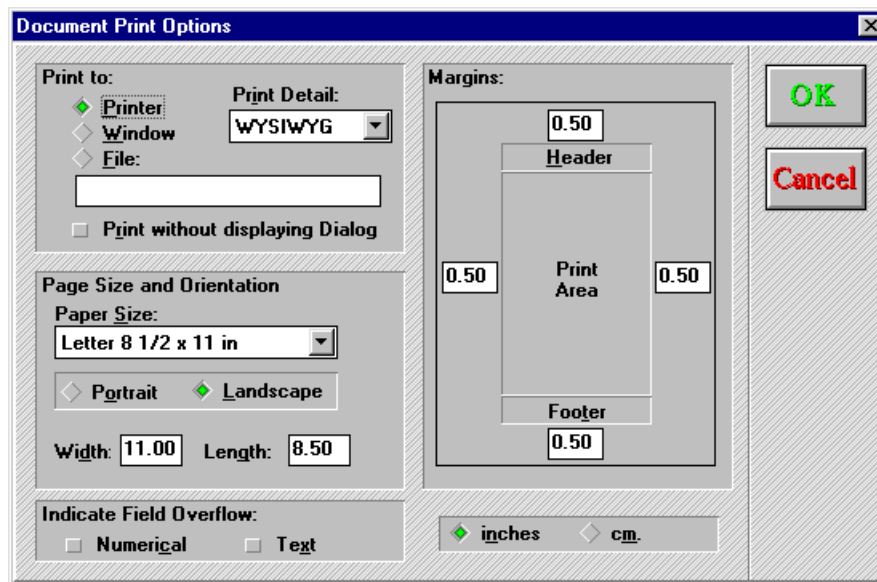
1. Choose **Document>>Properties**. DataEase displays the Document Properties dialog
2. Choose one of the following:
 - **New Record**, to initially display a blank record.
 - **First Record**, to initially display the first record in the form.
 - **Last Record**, to initially display the last record in the form.
 - **Table View**, to initially display the records in Table (rather than Form) View.
 - **Query by Form** to initially display a subset of the records in the document.
3. Click OK.

How to Change a Document's Style Sheet

1. Choose **Document>>Properties**. DataEase opens the Document Properties dialog and displays the document's current Style Sheet.
2. Choose a new Style Sheet from the drop-down list box.
3. Click OK to close the dialog. Objects with the same style name in the new Style Sheet are displayed with the new attributes. Objects with a style name not in the new Style Sheet become unstyled objects that retain their original attributes.

Setting Printing Defaults

When you choose **Document>>Print Options**, DataEase displays the Document Print Options dialog. This dialog lets you set a document's default print destination, page size, and margins.



Document Print Options Dialog

Print To lets you choose the default destination.

- **Printer** sends the document to the printer chosen using **File>>Print Setup**.
- **Window** sends the document to an on-screen window. DataEase displays the document in the same way it would appear if printed to paper. (Headers and Footers can be optionally printed).
- **File** stores the document with the filename you specify in the box just below this option. All printer control codes and formatting commands are stored with the document.

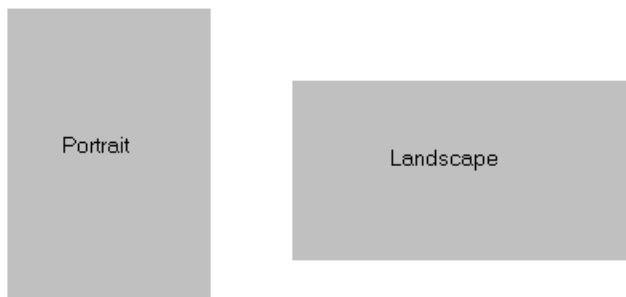
Print Without displaying Dialog prevents a user from altering the Print to or Print Detail settings when this option is checked. When unchecked, the Print Dialog displays before the document is printed.

Print Detail lets you specify the document's default print quality. Three choices are available in the drop-down list box.

- **Draft** prints text only, using the default printer or screen font.
- **Text** prints text only, using the font that the application designer specifies.
- **WYSIWYG** (What You See Is What You Get) prints all text, graphics, and special attributes, such as shading, that appear on the document.

Page Size and Orientation lets you choose from a list of common paper sizes, manually enter the paper size, and choose the page orientation.

- **Paper Size** lets you choose from a list of paper sizes. When you manually set a custom size using the box to the right, DataEase displays the User-Defined Size in the drop-down list box.
- **Portrait and Landscape** set the page orientation as vertical or horizontal respectively (see diagram below),
- **Width and Length** lets you manually set the page size in inches. When you choose an option from the Paper Size drop-down list box, DataEase automatically fills in the Width and



Length boxes.

Indicate Field Overflow depicts Text and/or Number characters that are longer than the field's length. Overflow characters are printed as pound signs # (hash to UK users) when the document is printed. If this option is not active and the field overflows, DataEase clips the last character(s) to tell you the printed data is incomplete. The effects of masking a field when it overflows are shown in the table below.

Indicate Field Overflow Settings

Actual Field Value	Indicate Overflow ON	Indicate Overflow OFF
89889	#####	8988
WORK	####	WOR

This option is not available for multi-line Text or Memo fields, since these fields expand to show all data. Also, if you define a field as Size to Fit, DataEase expands the field on the report to show all data, even if the expanded field overlaps the field to the right.

Margins lets you set the top, bottom, left and right margins individually by entering each margin's space in inches or centimeters in that margin's box. When you choose a paper size from the Paper Size drop-down list box, DataEase automatically fills the margin boxes.

How to Set a Default Print Destination

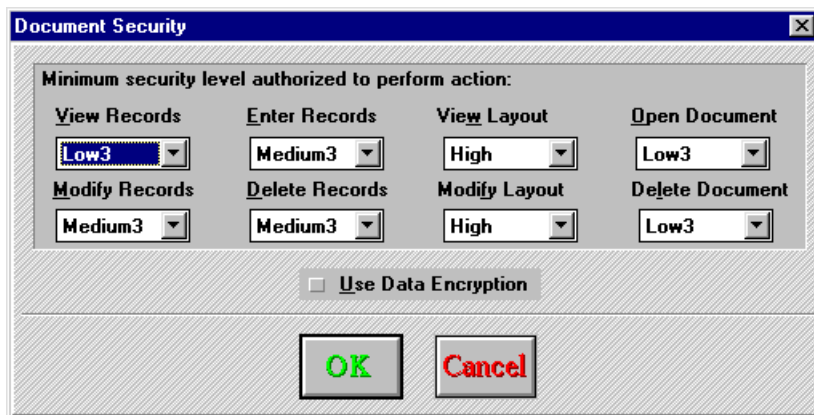
- Choose **Document>>Print Options**. DataEase displays the Document Print Options dialog.
- To set the default document print destination, choose:
 - Printer** to send the document to the default printer.
 - Window** to send the document to a window.
 - File** to save the document to disk. Specify the filename in the text box located below this option.
- To set the default Print Detail, choose:
 - Draft** to print text only, using the printer or screen font.
 - Text** to print text only using the font specified by the application designer.
 - WYSIWYG** to print all text, graphics, and special attributes.
- If you don't want users to modify the print options, click the Print without displaying Dialog check box.
- Click OK. DataEase saves your print settings.

How to Set a Document's Page Size and Margins

1. Choose **Document>>Print Options**. DataEase displays the Document Print Options dialog.
2. To set the document page size, choose the correct setting from the Paper Size drop-down list box, or manually enter the paper size in inches in the Width and Length boxes.
3. Choose a page orientation: Portrait or Landscape.
4. Set each margin by clicking in the appropriate box and entering the width of the margin in inches or centimeters.
5. Click OK. DataEase saves your page size and margin settings.

Setting Security Levels

When you choose **Document>>Security**, DataEase opens the Document Security dialog, which lets you set the minimum security level required to perform various record entry operations in User View. It also controls the ability to modify a document in Designer View.



Document Security Dialog Options

Minimum Security Level authorized to perform action lets you change the security level settings for a document. To change a setting, select the desired security level from the drop-down list box. The available options let you set the minimum security level to:

- **View Records** - view previously entered records.
- **Modify Records** - change data in previously entered records.
- **Enter Records** - enter new records.
- **Delete Records** - permanently erase records.
- **View Layout** - open the document in Designer View.
- **Modify Layout** - change the document's design.
- **Open Document** - open the document in User View.
- **Delete Document** - remove the document from the application.

Use Data Encryption lets you encrypt records entered into the document so they can only be read by this application (i.e. the DOS file is encrypted). If you encrypt the records, you cannot transfer the data to another application. Since records are encrypted as they are entered, check this box before you begin to enter records.

How to Change a Document's Security Setting

1. Choose **Document>>Security**. DataEase displays the Document Security dialog.
2. To change any security level setting for a document, click on the new settings in the appropriate drop-down list boxes.
3. Click OK to close the dialog.

How Document and Field-Level Security Work with User-Level Security

The security level can prevent a user from viewing or modifying the records or layout for a document. DataEase provides three levels of security: Document-Level, Field-Level, and User-Level.

The security level for a specific document or field takes precedence over each user's security level, as defined on the User Information form.

For example, if the application designer sets Modify Records to High for the MEMBERS form, a user with a Medium Security level cannot enter or modify MEMBERS records, even though users with a Medium Security Level are generally allowed to enter or modify records.

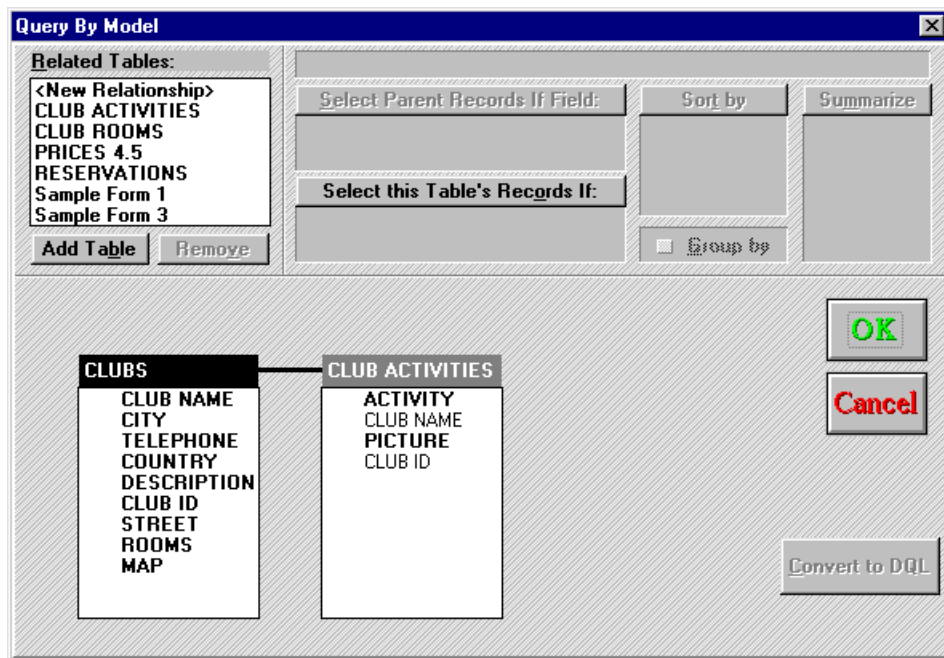
In addition, the security level for a document that **defines** a table takes precedence over the security level for a document that **uses** a table. Invalid security level settings do not appear as choices in the Document Security dialog.

How Document-Level Security Works with SQL Engine Security

To perform a record-entry operation on the data in a SQL table, you must have the required permission on the SQL engine, in addition to the minimum security level DataEase requires. If your DataEase security level is insufficient, or you lack the required SQL permission to perform your assigned job responsibilities, ask your database administrator for assistance.

Using Query By Model to View or Change a Document's Structure

When you choose **Document>>Query By Model**, DataEase displays the Query By Model (QBM) dialog shown below. QBM lets you automatically create a graphic representation of a document's database tables and their columns.



You can use a Query By Model to:

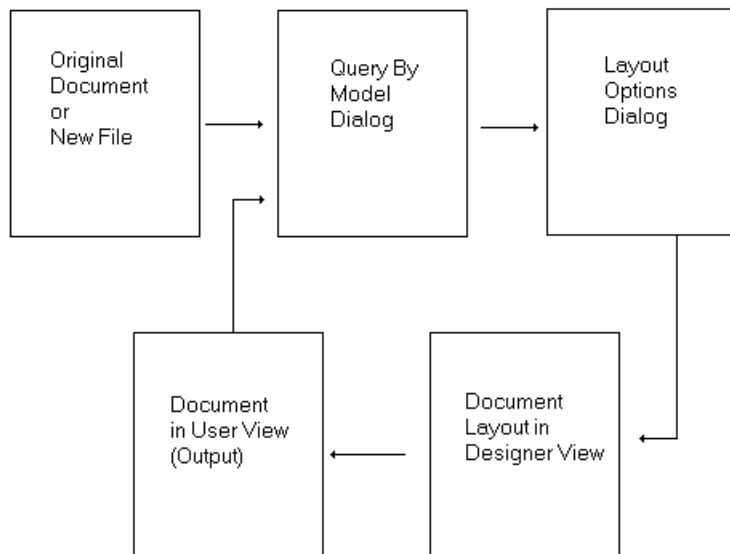
- View the tables and relationships that a document uses.
- Select fields to display in a report.
- Select fields to use as sort and selection criteria.
- Create Calculated and Summary fields.
- Create fields that display data from related tables.

You can also access Query By Model by choosing:

- **File>>New**. DataEase opens the New Document dialog. Click on the QBM button after making selections.
- In User View, choose **Query>>QBM>>New Report**.
- In User View, click on the Query By Model Toolbar button.

Document Creation and Editing Process

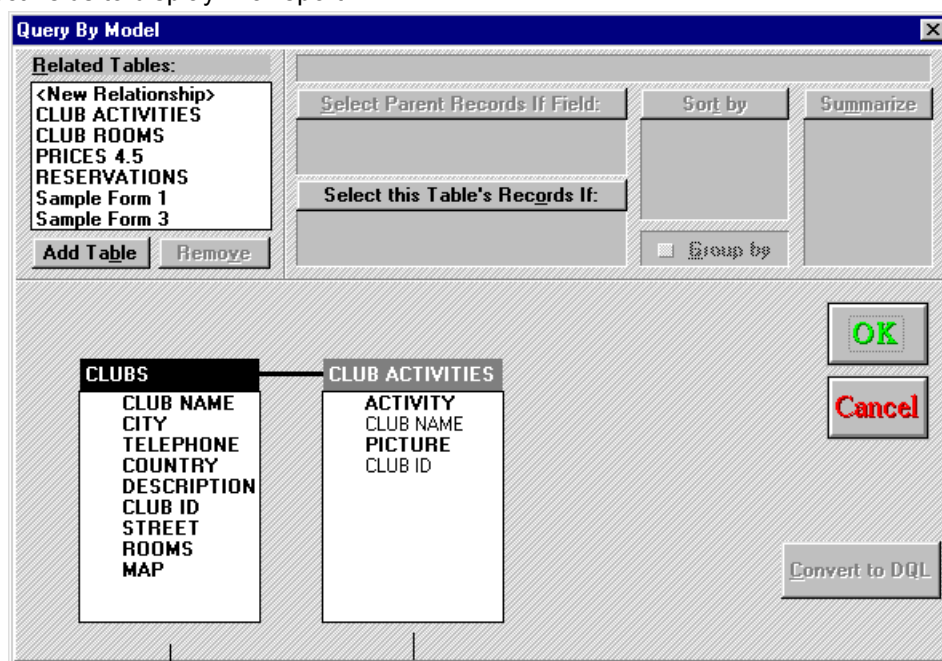
Query By Model lets you quickly create or modify a document based on one or more existing tables. The chart below shows the steps in the document creation and editing process.



Once you have created a new document, or modified an existing one, you can either return to the Query By Model, or to Layout Options dialog.

Query By Model Dialog Options

When you choose **Document>>Query By Model**, DataEase displays the Query By Model dialog shown below, which lets you view the tables and relationships a document uses, and select fields to display in a report.



The Query By Model dialog displays a Table Diagram for the current document.

Related Tables lets you add a related table to the Table Diagram. You can add a table from the list box or create a new relationship to access a table that is not listed. When you add a table to the Table Diagram, DataEase automatically creates a Subform on the document, with fields that correspond to the selected columns in the table.

- **Add Table** lets you add the table highlighted in the Related Tables list box to the Table Diagram.
- **Remove** lets you remove the highlighted table from the Table Diagram. When you remove a table from the Table Diagram, DataEase deletes the corresponding Subform and any data from the corresponding columns.

Select Parent Records If Field displays the selection criteria for the currently selected highlighted column. If you open Query By Model in User View, DataEase automatically passes any selection criteria specified in the Query By Form *QBF) to this area of the dialog.

Select this Table's Records If Field displays the selection criteria used to select records from the highlighted table. You can edit the criteria in this dialog using the standard DataEase text editing keys.

Sort By lets you sort the document records based on the currently highlighted column. You can sort the records in Ascending (A-Z, 1-9) or Descending (Z-A, 9-1) order. If you open Query By Model in User View, DataEase automatically passes any sort order specified in the query to this area of the dialog.

Group By lets you group records in the document based on the currently highlighted column. This choice lets you group data based on one column in the table. When you group by a column, DataEase automatically creates a Subform in the document, with fields that correspond to the selected columns in the table.

Summarize lets you generate statistics such as group totals and/or grand totals of all the data based on the values in selected columns. The statistic appears as a field at the end of the group, or the end of the document. You can calculate and display any of the following statistics on a column.

Sum	Count	Mean	Std Dev
Max	Var	Min	Std Err

If you add a statistical field on a document using Query By Model, DataEase does not add a column to the table.

Convert to DQL displays the Convert to DQL dialog, shown below. This asks you if you want to convert the QBM Report to a DQL Procedure. When you choose **Yes**, DataEase automatically displays the script in the DQL Script Editor.

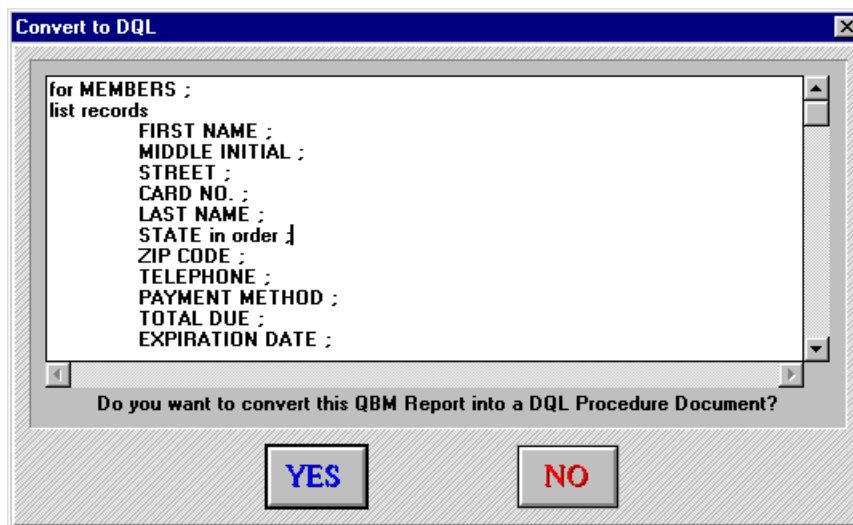
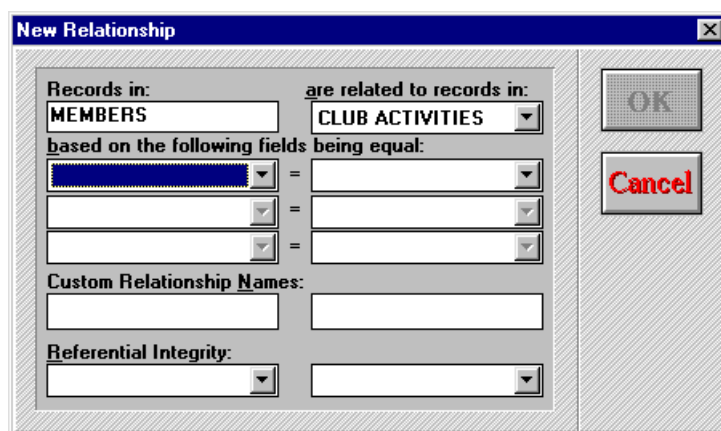


Table Diagram displays the tables that the document accesses. Under each table name, DataEase lists each column name. When you select a column, it is highlighted. Columns included in the document appear in **bold** type.

DataEase lets you select, sort, or generate statistics on a column even if it is not displayed in the report. Any column used to group, select, sort or summarize is assigned a symbol (G, ?, \uparrow , \downarrow , Σ) to indicate its function(s) in the query.

Adding a Table to the Related Tables List Box

If you want to add a table to the Table Diagram, but the table is not included in the Related tables list box, then you need to create a relationship between the two tables. Double-click on <New relationship> in the list box. DataEase opens the New Relationship dialog shown below, allowing you to define a new relationship.



New Relationship Dialog Options

Records In displays the name of the current table in the Table Diagram.

Are related to records in lets you define a new relationship based on the current table and another table in the application. To choose the related table, click on the table name in the drop-down list box.

Based on the following fields being equal lets you choose the Match fields on which the new relationship is based. DataEase displays the fields from the current table in a drop-down list box. Click on your choice of a Match field. To choose the related Match field, pick from the fields displayed in a drop-down list box on the right.

Custom Relationship Names lets you name a second relationship when there are two or more relationships between the same two tables. Enter the name you choose to differentiate the second relationship.

Referential Integrity lets you control how DataEase treats records that you modify or delete from a Multiform.

Selecting Records

If a document contains a selection criteria, DataEase displays only the records that meet the selection criteria. Query By Model lets you enter selection criteria for a form or a report. If no selection criteria are entered, DataEase displays all records.

We recommend that you index any field(s) that you frequently use to enter selection criteria.

When you add selection criteria for a column in the "Select Parent Records if Field" box (in this case Playa Blanca)...

The screenshot shows the 'Query By Model' dialog box. The 'Related Tables' list on the left includes '<New Relationship>', 'CLUB ROOMS', 'CLUBS', 'DEPARTURE ZONES', 'MEMBERS', 'PRICES 4.5', and 'RESERVATION DETAIL'. The 'Field: CLUB NAME' section shows 'Display' checked. The 'Select Parent Records If Field:' box contains '= "Playa Blanca"'. The 'Select this Table's Records If:' box contains '(CLUB NAME = "Playa Blanca")'. The 'RESERVATIONS' table diagram shows a list of fields with a question mark next to 'CLUB NAME'. The 'RESERVATION DE' table diagram shows a list of fields. The 'OK' and 'Cancel' buttons are at the bottom right, along with a 'Convert to DQL' button.

...DataEase displays a question mark next to the column name to indicate it is being used to select records in the document.

Sorting Records

If a document contains a sort order, it displays the records in Ascending or Descending order, based on the values in one or more fields. Query By Model lets you enter the sort order for a form or report.

If you define a sort order for a form, it may take longer to display the records, because of the time it takes to sort them. You can speed sorting by indexing the field or clustering the records (see **improving query performance**).

When you use QBM to sort by a column, DataEase displays a number representing the sort number for the table - 1 for primary sort, 2 for secondary, etc.

The screenshot shows the 'Query By Model' dialog box. On the left, under 'Related Tables:', there is a list of tables: '<New Relationship>', 'CLUB ROOMS', 'CLUBS', 'DEPARTURE ZONES', 'MEMBERS', 'PRICES 4.5', and 'RESERVATION DETAIL'. Below this list are 'Add Table' and 'Remove' buttons. In the center, 'Field: DEPARTURE DATE' is selected. Below it, 'Select Parent Records If Field:' and 'Select this Table's Records If:' are empty. To the right of these, there is a 'Sort by' dropdown menu showing '2', and two radio buttons: 'Ascending' (selected) and 'Descending'. Below these is a 'Group by' checkbox which is unchecked. At the bottom right, there are 'OK' and 'Cancel' buttons, and a 'Convert to DQL' button. The main area of the dialog shows two tables side-by-side: 'RESERVATIONS' and 'RESERVATION DETAIL'. The 'RESERVATIONS' table has columns: MEMBER ID, LAST NAME, FIRST NAME, DATE, CITY, STATE, ZIP CODE, RESERVATION, CLUB ID, DEPARTURE DATE, and CLUB NAME. The 'RESERVATION DETAIL' table has columns: CLUB ID, MEMBER ID, RESERVATION, LAST NAME, FIRST NAME, AGE STATUS, MEMBER LNAME, MEMBER FNAME, PRICE, CHILD PRICE, and RESERVATION. An arrow symbol is next to the 'MEMBER ID' column in the 'RESERVATIONS' table, indicating it is the sort key.

DataEase displays an arrow symbol next to the column name, to indicate the column is being sorted.

Grouping Records

You can group the data in a document by choosing:

- A related table.
- A column in the current table.

In either case, Query By Model creates a Subform in the document with fields that correspond to the highlighted columns in the table.

Grouping Records in a Related Table

The RESERVATIONS form provides the general information about club members, needed to make reservations. Adding the RESERVATION DETAIL form as a Subform of the RESERVATIONS form lets you see detailed information about family members.

To add the RESERVATION DETAIL form as a Subform in the RESERVATIONS form, simply double-click on RESERVATION DETAIL in the Related Tables list box.

Query By Model

Related Tables:

- <New Relationship>
- CLUB ROOMS
- CLUBS
- DEPARTURE ZONES
- MEMBERS
- PRICES 4.5
- RESERVATION DETAIL**

Select Parent Records If Field:

Select this Table's Records If:

Sort by

Summarize

☐ **Group by**

RESERVATIONS

- MEMBER ID
- LAST NAME
- FIRST NAME
- DATE
- CITY
- STATE
- ZIP CODE
- RESERVATION ID
- CLUB ID
- DEPARTURE ZONE
- CLUB NAME

RESERVATION DE

- CLUB ID
- MEMBER ID
- RESERVATION ID
- LAST NAME
- FIRST NAME
- AGE STATUS
- MEMBER LAST NAME
- MEMBER FIRST NAME
- PRICE
- CHILD PRICE
- RESERVATION ID

OK

Cancel

Convert to DQL

Grouping Records in a Single Table

The RESERVATIONS DETAIL form stores reservations in the order they are entered. You can use QBM to group reservations in any way you like - for example, by the club a member is planning to visit.

To group data by the CLUB NAME column, highlight CLUB NAME and click on the Group by check box.

The screenshot shows the 'Query By Model' dialog box. On the left, under 'Related Tables:', a list includes '<New Relationship>', 'CLUB ROOMS', 'CLUBS', 'DEPARTURE ZONES', 'MEMBERS', 'PRICES 4.5', and 'RESERVATION DETAIL'. The 'RESERVATION DETAIL' table is highlighted. Below this list are 'Add Table' and 'Remove' buttons. To the right of the list are three columns: 'Select Parent Records If Field:', 'Sort by', and 'Summarize'. Below these columns is a 'Select this Table's Records If:' section with a 'Group by' checkbox, which is checked. In the main area, two table schemas are shown. The left schema is for the 'RESERVATIONS' table, with columns: MEMBER ID, LAST NAME, FIRST NAME, DATE, CITY, STATE, ZIP CODE, RESERVATI, CLUB ID, DEPARTURE, and CLUB NAME. The right schema is for the 'RESERVATION DE' table, with columns: MEMBER ID, LAST NAME, FIRST NAME, DATE, CITY, STATE, ZIP CODE, RESERVATIO, CLUB ID, DEPARTURE, and CLUB NAME. A line connects the 'CLUB NAME' column in the left schema to the 'GROUP: CLUB NAME' header in the right schema. A small 'G' icon is next to the 'CLUB NAME' column in the left schema. On the right side of the dialog are 'OK' and 'Cancel' buttons, and a 'Convert to DQL' button at the bottom right.

"G" tells you the column is being Grouped.

Generating Statistics

If you specify summary statistics, such as Group Totals and/or Grand Totals, using QBM, the statistic appears as a field at the end of the group (on the Subform), or at the end of the document. You can calculate and display any of the following statistics on a column.

Sum	Count	Mean	Std Dev
Max	Var	Min	Std Err

By modifying your layout you can display group statistics at the beginning of a group, or next to a group.

To summarize the data in the LAST NAME column, highlight the column name and click on the Statistic you want to display (in this case, Count).

Query By Model

Related Tables:
 <New Relationship>
 FAMILY MEMBERS
 RESERVATIONS

Field: LAST NAME ☒ Display

Select Parent Records If Field:

Select this Table's Records If:

Summarize
 Sum
 Mean
 Max
 Min
 Count
 Stddev

☐ Group by

RESERVATIONS
 DATE
 CITY
 STATE
 ZIP CODE
 RESERVATI
 CLUB ID
 DEPARTURI
 CLUB NAME
 DEPARTURI
 CLUB LOCA
 DEPARTURI

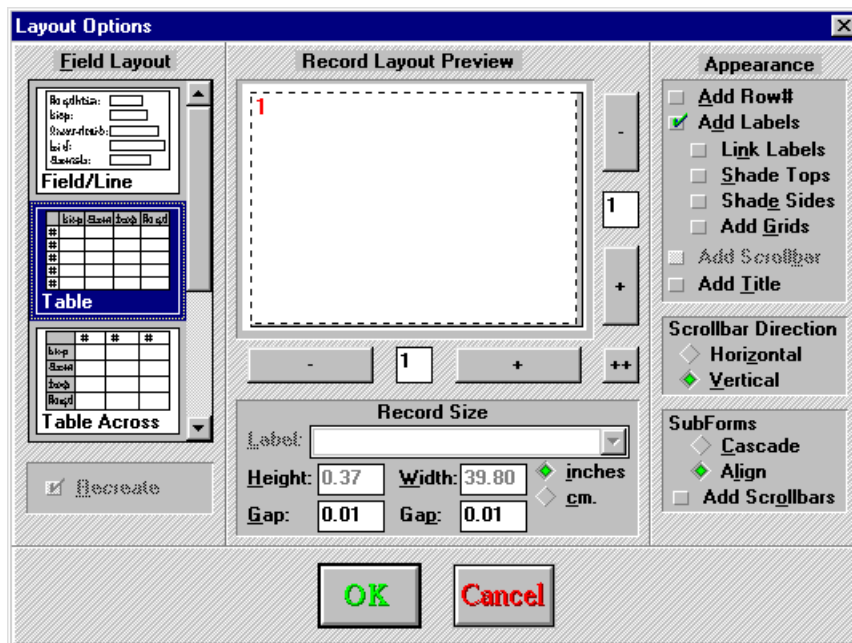
RESERVATION DE
 CLUB ID
 MEMBER ID
 RESERVATIO
 Σ LAST NAME
 FIRST NAMI
 AGE STATU
 MEMBER LNA
 MEMBER FNA
 PRICE
 CHILD PRICE
 RESERVATI

OK **Cancel**

Convert to DQL

Designing the Layout for a New Document

After you click OK to save the Query By Model settings, DataEase displays the Layout Options dialog shown below. The Layout Options dialog lets you choose a predefined layout, specify the arrangement of fields in a form or Subform, and specify a variety of other layout options.



Layout Options Dialog Options

Field Layout displays sample field arrangements for five layouts: Field/Line, Table, Table Across, Mailing Labels, and Movie Credits.

Record Layout Preview displays the arrangement you specify and lets you choose the number of records to display horizontally and vertically.

Appearance lets you specify whether to display row numbers, field labels, label shading, scroll bars, and/or titles on the form.

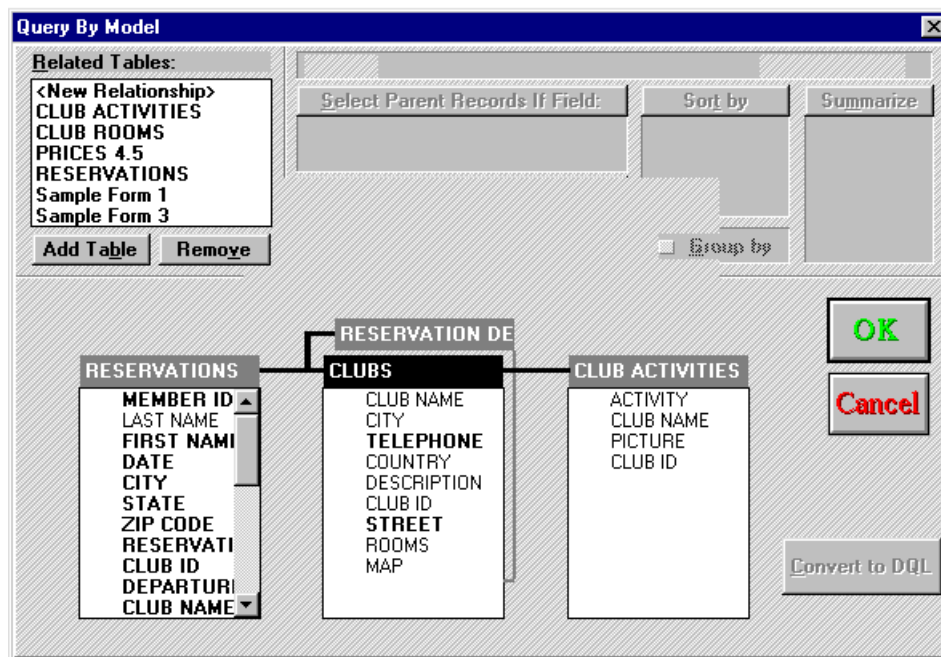
Record Size lets you specify the Height and Width of the form area in inches or centimeters.

Scroll Direction lets you specify whether you want to scroll records horizontally or vertically.

How to View a Document's Data Structure

1. Choose **Document>>Query By Model**. DataEase opens the Query By Model dialog, and displays in the Related Tables list box all the tables that are related to the document's primary database table. DataEase displays in the Table Diagram all the tables currently associated with the document.
2. Click OK to close the dialog.

QBM can graphically display a document's data structure, as shown here.



How to Add a Subform to a Document

1. Choose **Document>>Query By Model**. DataEase opens the Query By Model dialog.
2. If the table you want to add is already in the Related Tables list box, double-click on its name and DataEase will add your selection to the Table Diagram.

...or

If the table is not in the Related Tables list box, you must define a relationship to it. Double-click <New Relationship>, and DataEase opens the New Relationships dialog. Enter the name of the table you want to add to the Table Diagram, specify the Match fields, and click OK to close the dialog. The table now appears in the Related Tables list box, and you can double-click on it to select it.

3. Click OK to close the dialog.

How to Remove a Subform from a Document

1. Choose **Document>>Query By Model**. DataEase opens the Query By Model dialog.
2. In the Table Diagram, click on the table's title, or highlight any column name in the target table.
3. Click Remove. DataEase removes the table from the Table Diagram and places its name in the Related Tables list box.
4. Click OK to close the dialog.

Note: You can also remove a Subform from a document by selecting the Subform in Designer View, and pressing the Delete key.

How to Add or Remove Fields using QBM

1. Choose **Document>>Query By Model**. DataEase opens the Query By Model dialog.
2. To select a column, click on the column name in the Table Diagram and press the spacebar, or click the column name and click the Display check box. DataEase displays the selected column name in bold type.
3. To deselect a column, repeat step 2. DataEase displays the column name with normal highlighting (bold type is removed).
4. Click OK to close the dialog.

Note: To select or deselect all columns, simply click on the first column and drag the cursor down through the list. When all columns are selected release the mouse button and press the spacebar.

How to Select Records using QBM

1. Choose **Document>>Query By Model**. DataEase opens the Query By Model dialog.
2. Select the column to display in the document (or deselect the column, if you want to use it only as a data filter).
3. Click Select Parent Records If Field. DataEase displays the Selection Expression box.
4. Use the Selection Expression Builder to enter the selection criteria in DQL syntax. When selection criteria are assigned to a column, DataEase displays a question mark next to the column.
5. Click OK to close the dialog.

How to Sort Records Using QBM

1. Choose **Document>>Query By Model**. DataEase opens the Query By Model dialog.
2. Double-click on the column you want to use to sort the document's data.
3. Click on the Sort By button. When DataEase displays the sort order options, click on Ascending or Descending to order the records. DataEase displays the sort order number for that column in the box over the Ascending/Descending option. When a sort order is assigned to a column, DataEase displays an arrow next to the column name - ↑ for Ascending sort, and ↓ for a descending sort.
4. Click OK to close the dialog.

How to Group Records using QBM

1. Choose **Document>>Query By Model**. DataEase opens the Query By Model dialog.
2. Double-click on the column you want to use to group the document's data.
3. Click on the Group By check box. DataEase displays a second instance of that column's table in the Table Diagram and automatically creates a corresponding Subform in the document. DataEase displays a G next to each group column in the original table.
4. Select the columns that you want to appear within that group.
5. To create a third level, repeat steps 2, 3, and 4. DataEase displays a third table in the Table Diagram and automatically creates another Subform in the report.
6. Click OK to close the dialog.

How to Generate Statistics using QBM

1. Choose **Document>>Query By Model**. DataEase opens the Query By Model dialog.
2. Double-click on the column you want to use to generate summary statistics for the document's data.
3. Click on the Summarize button.
4. Choose one or more of the statistical operators from the list DataEase displays.
5. Click OK to close the dialog. DataEase places a new Summary field on the appropriate form object(s). The new field is named after the field it summarizes.

How to Use DQL Selection Criteria in QBM

1. Choose **Document>>Query By Model**. DataEase opens the Query By Model dialog.
2. Click on any column or the title of the filtered table.
3. Click the Select This Table's Records If button. DataEase displays the Selection Expression Builder box, and any previously entered selection criteria.
4. View the criteria. If you want to change the criteria, enter the new criteria directly in the box using any valid DQL expression. When you click OK, DataEase uses the new criteria to find records.
5. Click OK to close the dialog.

Setting a Custom Tab Order

When you choose **Document>>Set Tab Order**, DataEase displays the document with an opaque oval over each field and button, and any Action-containing graphic image. The ovals in prevent entry fields are grayed out, indicating that they can't be selected. The Tab order number of the field button or image is displayed inside the oval. Any object in the tab order that does not have a Custom tab Order assigned to it has a green tab order number.

When you press Tab during record entry, the cursor moves to the next field, button or image. By default, the cursor starts at the upper left corner of the form, and moves left to right and top to bottom towards the lower right corner (like reading this page of text).

To make record entry easier, you can assign a Custom Tab Order to a document. A Custom Tab Order can help ensure that field values are entered in the correct order, so DataEase can calculate derived field values correctly.

The Tab Order is ignored (over ruled) when a user uses a mouse to position the cursor in a specific field.

The Tab Order is the same in both Form and Table View.

Multiform Tab Order

When you enter records in a Multiform, the cursor, moves by default first through each field, button and Action-containing graphic image in the Main form. The cursor then moves to the first Subform field. Once the cursor enters the Subform field, you must tab through each Subform field on screen, before the cursor returns to the Main form.

You can create a Custom Tab Order to make record entry in a Multiform easier. In the example below, the cursor enters the Subform before it moves through the Buttons and Membership Fee details on the Main form. However, whatever tab order you select, the cursor can **only** exit a Subform from the last Subform field on screen (unless you over ride the Tab Order by using the mouse).

The MEMBERS form shows Custom Tab Order in use. The default 'left to right' Tab Order has been customized to make data-entry more logical.

MEMBERS

Club ParaDEASE
The Antidote to Documentation

Member ID: 1 ME

Buttons: New, Save, Delete, Close, Clubs, 26 Observations

Navigation: Previous, Next

Main form fields:

- Last Name: 2 T NAME
- First Name: 3 ST NAME
- Initial: 4
- Street: 5 EET
- City: 6 Y
- Zip Code: 7
- Code: 8 CODE
- Expiration Date: 9 IRAT
- Telephone: 10 EPHONE

Favorite Activity: 11 ORITE AC

Method of Payment: 12 MENT METHOI

Card No. 13 AD NO.

Family Members

First Name	Last Name	Date of Birth
14 T NAME	15 NAME	16 OF

Membership Fees

Adult Annual Fee \$35.00
Child Annual Fee \$15.00

Adult Fees: 17 S

Child Fees: 18

Total Due: 19 JE

The SubForm (FAMILY MEMBERS) has a Custom Tab Order, too.

Viewing and Setting the Tab Order

When you choose **Document>>Set Tab Order**, DataEase displays the current tab order. When you choose **Document>>Default tab Order**, DataEase restores the default tab order to the document. By default, the cursor starts at the top left-hand edge of the form and moves from left to right and top to bottom toward the lower right corner.

Note: Selecting **Document>>Default tab Order** will immediately reset the tab order. You cannot undo this action, If you select this option by mistake, close the document and answer "No" when prompted to Save Changes.

How to View the Current Tab Order

1. Choose **Document>>Set Tab Order**. DataEase displays the tab order, with an opaque oval over each field, button and graphic image that has an assigned action. The tab order number assigned to each object is displayed within each oval.
2. Hold down Tab. DataEase displays the tab order, including the ovals that do not have a number specified. If you prefer, you can tab through each field.
3. Choose **Document>>Set Tab Order** again. The Tab Order is no longer displayed in Designer View.

How to Create a Custom Tab Order

1. Choose **Document>>Set Tab Order**. DataEase displays the tab order, with an opaque oval over each field, button and graphic image that has an assigned action
2. With your mouse, click on the ovals in the order you want the cursor to move in User View. (If you prefer, you can type the tab order number directly into each oval).
3. Choose **Document>>Set Tab Order** again. The Tab Order is no longer displayed in Designer View.

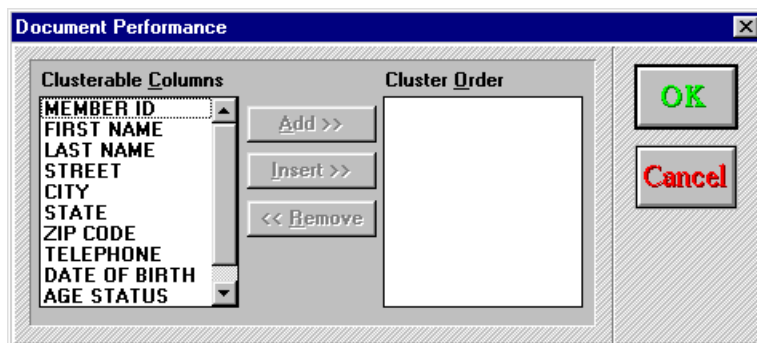
How to Restore the Default Tab Order

1. Choose **Document>>Set Tab Order**.
2. DataEase restores the default tab order to the document.

Improving Query Performance

When you choose **Document>>Performance**, DataEase displays the Document Performance dialog shown below. Use this dialog to reorder the records in a table to improve the speed of QBF searches, QBM reports, and DQL Procedures. The dialog lets you choose and order the column(s) in which DataEase physically stores, or clusters, the records in the form.

To cluster a table, choose this option when the form that **defines** the table is active. If you choose this option while viewing a document that merely **uses** a table, you can only view the clustered columns.



Document Performance Dialog Options

Clusterable Columns lists the columns that are not currently in the Cluster Order list box. To add a column to the Cluster Order list box, use either the **Add>>** or **Insert>>** buttons.

Cluster Order lists the columns that DataEase uses to order and store the rows in the table. When you save the form, DataEase sorts the records by the data in the first column and saves the records in that order back to disk. If you place a second column in the list, DataEase sorts the records from this column that have a duplicate value in the first clustered column.

Add>> lets you add a column to the Cluster Order list box. Click this button to add the highlighted column in the Clusterable Columns list box to the end of the Cluster order list box.

Insert>> lets you insert a column between two columns already listed in the Cluster Order list box. Click this button to add the highlighted column in the Clusterable Columns list box before the highlighted column in the Cluster Order list box.

<<Remove lets you remove a column from the Cluster Order list box. Click this button to remove the highlighted column from the Cluster Order list box.

When you save the form after creating a cluster order, DataEase reorganizes the form and sorts the records. Depending on the number of records in the table, this operation may take a considerable amount of time.

You can only cluster columns from a Native DataEase table. If a table is stored on a foreign engine, the physical order of the records on disk is controlled by the foreign engine. (Typically, though not necessarily, they would be stored in Primary Key order).

Note: You can not cluster columns on a form which possesses a Sequenced ID field.

Note: We do not recommend adding more than three columns to the Cluster Order list box.

Using Clustering to Improve Performance

When you cluster a table, DataEase sorts the rows by the value(s) in the column(s) you specify in the Document Performance dialog, and saves the ordered records to disk. Because the records that have identical values in the clustered column are stored together, DataEase quickly finds the records that match any search criteria in the field.

For example, the records in the CLUB ROOMS form are entered by CLUB ID and then DEPARTURE DATE for record entry convenience. However, if members who call to make reservations usually ask what clubs are available on a specific date, then it would be preferable to cluster on the DEPARTURE DATE and CLUB ID columns.

Indexing Clustered Columns

To further improve performance, we recommend that you create an index on the first clustered column. To create an index, check Indexed in the column's Field Definition dialog.

Determining When to Cluster Tables

In general, clustering a table improves performance if you frequently use:

- QBF or QBM to sort records by the same column.
- QBF to find records by a particular column.
- DQL Procedures to process records in the order of a particular column.

For example, if you cluster the Club ParaDEASE EMPLOYEES table by LAST NAME, DataEase stores the records in the order of the LAST NAME values. This will result in all display, sorting and selection operations working faster on the LAST NAME field than with other fields in the form.

Determining when to Avoid Clustering

You will not see a performance benefit from clustering a table if:

- The table is small (unless it is rarely modified).
- The index of the clustered column is compressed.
- The records are entered in the order of the clustered column.
- The data in the clustered column is frequently modified or deleted.

For example, do not cluster the table if you enter records chronologically and usually search on the DATE field, because the records are automatically stored in the optimal order for queries.

Another example: each club keeps a record of which member is currently occupying each room. However, because this table is small (it contains only one record per room) and the data changes weekly, you should not cluster the table.

Reorganizing a Form to Improve Performance

When you add records to a clustered table, DataEase inserts these records after the last row in the table, **not** in clustered order. When you enter a large number of new records, choose **Application>>Utilities>>Reorganize Form**, to sort the new records into clustered order.

If you remove the clustered order and save the form, DataEase does not sort the records, so the clustered order will degrade.

You will not see a performance benefit if you reorganize the form after you enter each new record. However, the point at which you need to reorganize the form varies, depending on how the form is used in record entry and DQL procedures.

For example, a record clerk usually enters a year's worth of CLUBS records at one time. It makes sense to reorganize the form after all these records are entered, since many of the entered records will not be in clustered order.

In another example, the clerk's constantly enter new records in the RESERVATIONS form and run many complex reports at the end of the week. It may make sense to reorganize the form just before the week-end reports are run.

How to Sort the Data in a Table to Improve Query Performance

1. Open the document that defines the table and choose **Document>>Performance**. DataEase displays the Document Performance dialog.
2. In the Clusterable Columns list box, highlight the column in the table that you most frequently use to find records.
3. Click **Insert>>** to add the column to the Cluster Order list box.
4. Repeat steps 2 and 3 if you want to sort the records by an additional column
5. Click OK to close the dialog. When you choose **File>>Save** to save the form, DataEase permanently reorders the records in the table by the value in the clustered column(s).

Customizing Menus

DataEase provides two types of custom menus: menu documents and pull-down menus. Frequently, menu document options relate to the task at hand. For example, the Club ParaDEASE Main Menu opens various forms. Pull-down menu options generally apply to tasks common to most application documents. For example, you may want to delete the Application menu so users can only perform application maintenance tasks in Designer View.

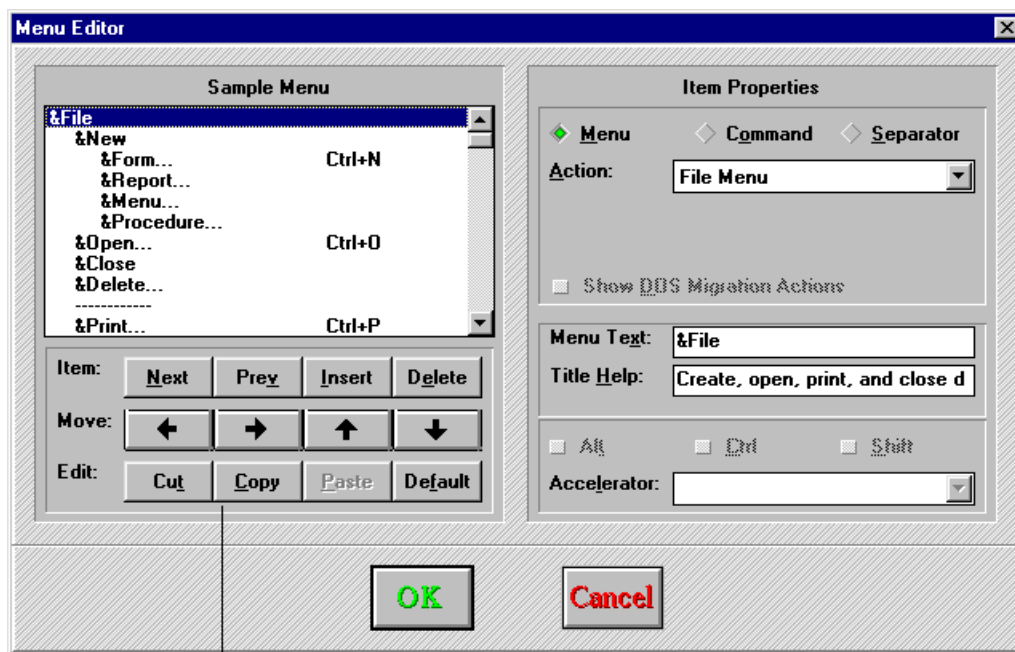
Modifying Pull-Down Menus

When you choose Document Pull-Down Menu, DataEase opens the Menu Editor dialog shown below. This dialog lets you modify the Menu Bar and the menu options that appear when you open a document in User View. (You cannot change Designer View menus).

Use this option to:

- Rename, delete, or move an existing menu or option.
- Add menus and/or options.
- Define keyboard accelerators for any menu or option.
- Copy custom pull-down menus to another document.

Using the Application Preference dialog, you can change the User View menus for all the documents in your application simultaneously. However, creating application default menus does **not** prevent you from choosing **Document>>Custom Menu** to customize a User View menu for a particular document. When you design custom menus, make sure at least one user can open each document in Designer View.



The Editing Buttons

Menu Editor Dialog Options

Sample Menu displays the pull-down menus in outline format. An item that is flush left appears on the Menu Bar. An item that is indented once is a pull-down menu. An item indented twice is a cascade menu option. To add, delete, or move menu items, use the Editing Buttons described below. An ampersand (&) indicates a keyboard equivalent (see [Item Properties](#)).

As you click on an item in Sample Menu list box, the item is highlighted and its properties are displayed in the Item Properties box to the right.

To highlight several items at one time, press the control key and click on each item. To highlight a block of items, click and drag the mouse. Or click on the first item in the block, press Shift, and click on the last item in the block.

Editing Buttons lets you specify which items appear on customized menus.

- **Next** highlights the next item.
- **Previous** highlights the previous item.
- **Insert** adds a space above the highlighted item. To define an action to place at the inserted space, click on the Menu or Command radio buttons under Item Properties, (To insert a space at the bottom of the list, highlight the last item and click Next).
- **Delete** removes the highlighted item(s). (If you delete a menu option that has a keyword accelerator, such as **File>>Designer View**, its accelerator (F4 in this case) is also deleted.
- **←** moves the highlighted item(s) one level up in the menu hierarchy. For example, if you click this button while a pull-down menu option is highlighted, the item becomes an option on the Menu Bar.
- **→** moves the highlighted item(s) one level down in the menu hierarchy. For example, if you click this button while a Menu Bar item is highlighted, the item becomes an option on a pull-down menu.
- **↑** moves the highlighted item(s) above the previous item.
- **↓** moves the highlighted item(s) below the next item.
- **Cut** removes a highlighted item(s) from the Sample Menu and copies it to the Clipboard.
- **Copy** copies a highlighted item(s) to the Clipboard without removing it from the Sample Menu.
- **Paste** inserts the Clipboard's contents into the Sample Menu. DataEase inserts the item(s) above the highlighted item.
- **Default** loads the User View menus shipped with DataEase, or the Application Default Menus, if any have been defined.

Item Properties defines the highlighted item by assigning it an action, name, help message, and/or keyboard accelerator.

- Action lets you define a pull-down or cascade menu, option, or separator. Choose:

Menu to define a pull-down or cascade menu.

Command to define an option that executes an action. Choose an action from the drop-down list. If the action requires a parameter, enter one in the parameter box. A prompt above the Parameter box tells you what type of parameter to enter.

Separator to create a separator line under the highlighted item. Separators divide pull-down menus into sub-groups of options.

- **Menu Text** lets you enter or modify the item name, and, optionally, assign a keyboard accelerator. To assign a keyboard accelerator, type an ampersand (&) before a character. If you want an ampersand to appear in the menu option name, type &&. For example, if you want the option to read Lookup & Return, enter &Lookup && Return in the Menu Text box.

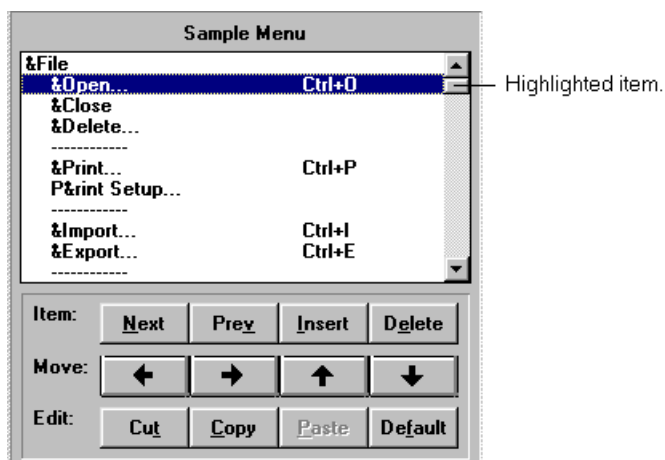
Note: You cannot change menu text for some commands, because the text is variable. For example, the Return Data to option on the Document Menu has text that changes according to the document name. DataEase indicates variable menu text by graying it.

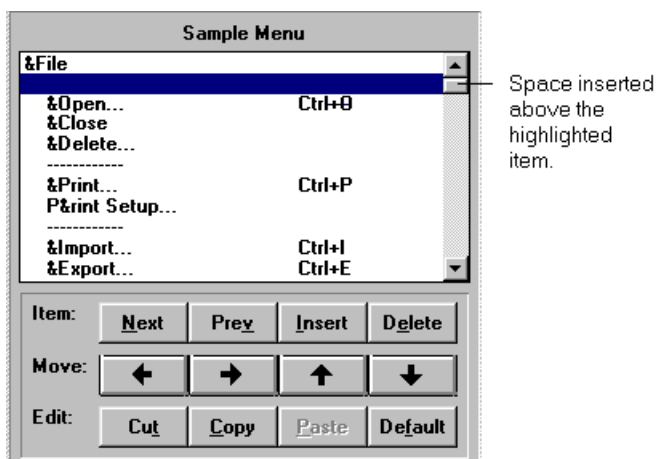
- **Title Help** lets you enter or modify the Title Bar help message for the item. When you highlight the item in User View, DataEase displays this message in the document's Title Bar. The message's maximum length varies with the size of the window, the screen resolution, and the width of the characters used (e.g. a **W** takes more space than an **i**).
- **Accelerator** lets you enter a keyboard accelerator for an option. To create a keyboard accelerator, check a combination of the Alt, Ctrl, and Shift keys and select an option from the drop-down list. For example, to create the accelerator Ctrl + 3, check Ctrl and select 3 from the drop-down list.

Note: DataEase prevents you from duplicating Windows system accelerators by excluding them from the drop-down list.

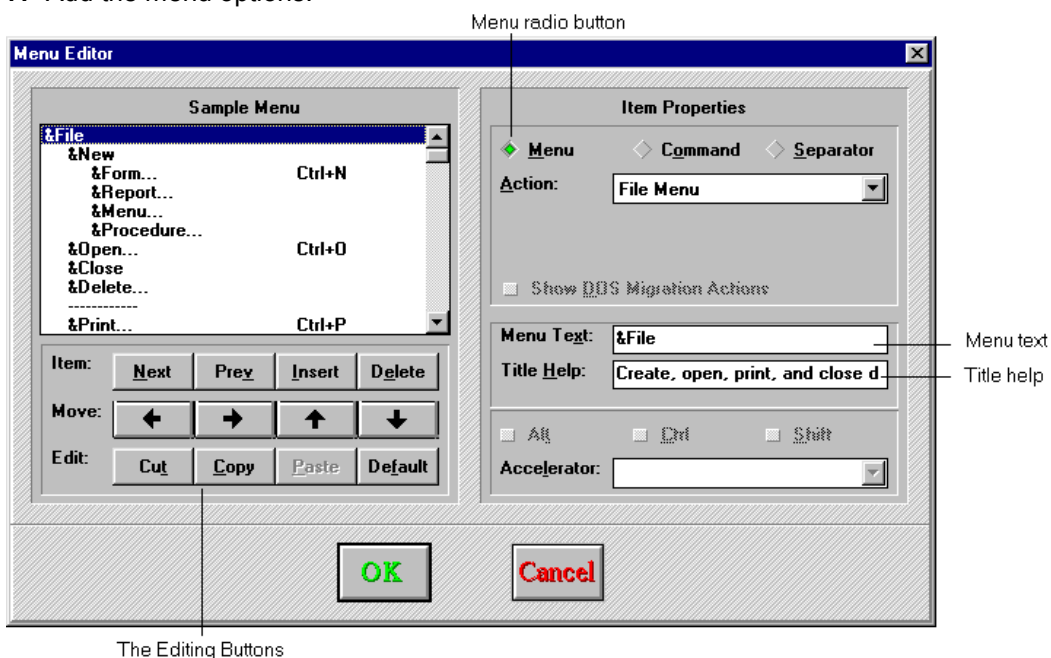
How to Modify a Pull-Down Menu

1. Open the document in Designer View. Choose **Document>>Custom Menu**. DataEase opens the Menu Editor dialog.
2. In the Sample Menu, highlight the item occupying the space where you want to insert your new menu title. Click Insert. DataEase adds a space above the item that was highlighted.





3. Click the menu radio button
4. In the Menu Text box, enter the menu name as you want it to appear on the Menu Bar. DataEase automatically enters this name in the Sample Menu. Use the ← and → buttons to move the menu name to its correct level in the menu hierarchy.
5. In the Menu Text box, type an ampersand (&) before the keyboard accelerator character. (In User View, you can press Alt and the keyboard accelerator character to choose the menu option).
6. In the Title Help box, enter a message that will appear in the Title Bar when the menu name is highlighted in User View.
7. Add the menu options.



Note: You can customize pull-down menus for any form, menu, or report document - including a start-up document.

How to Add a Pull-Down Menu Option

1. Open the document in Designer View. Choose **Document>>Custom Menu**. DataEase opens the Menu Editor dialog.
2. Highlight the item below the menu name and click Insert. DataEase inserts a space under the menu name.
3. If you want the menu item to open a cascade menu, select menu. If you want the menu item to execute a command, select Command. (then enter an action from the drop-down list of actions).
4. Enter the item name in the Menu Text box as you want it to appear in the menu. DataEase automatically enters this name in the sample menu.
5. Click the → button once to move the item to its correct level in the menu hierarchy.
6. In the Menu text box, type an ampersand (&) before the keyboard accelerator character. (In User View, you can press Alt and this character to choose the menu option).
7. In the Title Help box, enter a message that you want to appear in the Title Bar when the option is highlighted in User View.
8. To add an accelerator key combination, check the Alt, Ctrl, and/or Shift key boxes, and then select an item from the drop-down list. (In User View you can use this keyboard accelerator to execute this command, instead of choosing the option from the menu. DataEase automatically displays the accelerator on the menu).
9. If the menu item opens a cascade menu, return to step 2 to add menu options. If the menu item directly executes a command, select an action (with any necessary parameter).
10. Repeat steps 2-9 until all menu options have been inserted. Click OK to close the dialog and return to the document. DataEase displays the menu(s) in user View.

How to Delete a Pull-Down Menu or Option

1. Open the document in Designer View. Choose **Document>>Custom Menu**. DataEase opens the Menu Editor dialog.
2. Highlight the item(s) in the Sample Menu and click Delete.
3. Click OK to close the dialog and return to the document. DataEase deletes the item(s) in User View.

Note: If you delete all items in the Sample Menu, DataEase displays the document without a Menu Bar. Without a Menu Bar, you cannot use Windows menu options to tile or cascade open document windows. You must press Ctrl + F6 to switch between DataEase documents.

If you maximize a document that does not have a Menu Bar, you cannot resize the window. Also, Windows does not display the document's Control Menu or its Minimize, Maximize and Restore buttons. To perform these actions, press Alt + Hyphen to open the document's Control Menu.

How to Rearrange a Pull-Down Menu

1. Open the document in Designer View. Choose **Document>>Custom Menu**. DataEase opens the Menu Editor dialog.
2. In the Sample Menu, highlight the item(s) that you want to move. Use the ↑ and ↓ buttons to move the highlighted item(s) up and down.

Or

Click the Cut button. DataEase moves the item(s) to the Windows Clipboard. In the Sample Menu, place the cursor just below the menu name or the option where you want to paste the menu item(s). Click the Paste button. DataEase inserts the pull-down menus in the Sample Menu.

3. To move other item(s), repeat step 2.
4. Click OK to close the dialog and return to the document. DataEase displays the revised menus(s) in User View.

How to Copy a Document's Pull-Down Menus to Another Document

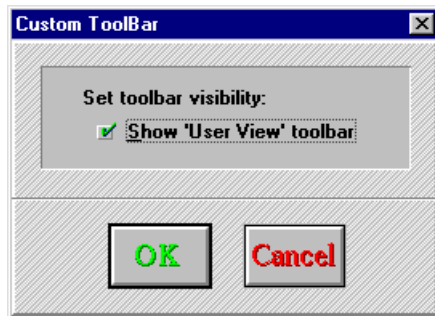
1. In Designer View open the document with the custom pull-down menus that you want to copy. Choose **Document>>Custom Menu**. DataEase displays the Menu Editor dialog.
2. Highlight all the menu names and options that you want to copy in the Sample Menu, and click Copy. DataEase copies the menus to the Windows Clipboard.
3. Click OK to close the dialog.
4. In Designer View open the document in which you want to paste the custom pull-down menus. Choose **Document>>Custom Menu**. DataEase opens the Menu Editor dialog.
5. Place the cursor below the menu name or option where you want to paste the pull-down menus and click Paste. DataEase inserts the pull-down menus in the Sample Menu.
6. Click OK to close the dialog and return to the document. DataEase displays the revised menu(s) in User View.

How to Restore the Default User View Pull-Down Menus

1. Open the document in Designer View. Choose **Document>>Custom Menu**. DataEase opens the Menu Editor dialog.
2. Click the Default button. DataEase displays the default menus in the Sample Menu. If Application Default Menus have been defined, DataEase displays them. Otherwise, DataEase displays the original User View menus shipped with DataEase.
3. Click OK to close the dialog and return to the document. DataEase displays the default menus in User View.

Displaying the Toolbar in User View

When you choose **Document>>Custom Toolbar**, DataEase displays the Custom Toolbar dialog shown below. The default is Show "User View" Toolbar. If you do not want the Toolbar to be visible to some users, open this dialog (when you customize their menus). Click the check box. The Toolbar does not appear when these users start DataEase.



Chapter 8 : The Application Menu

The options on the Application menu are used to control access to the data and objects managed by an application by defining each user's Name, Password, and Security level, defining relationships between database tables, registering Custom Defined Functions (CDF's), and linking external databases to the application.

Each menu option is summarized in the table below, and is explained in detail on the following pages.

Summary of Application Menu Options

Menu Option	Keyboard Equivalent	Menu Option is used to...
Users	Alt + A, U	Give a new user access to the application by assigning him or her a Name and Password.
Relationships	Alt + A, R	Define a relationship between database tables and maintain existing relationships.
Custom Functions	Alt + A, F	Register a Custom-Defined Function with the application.
Database Links	Alt + A, D	Link an external database to an application.
Utilities	Alt + A, D	Reorganize data in a table, backup, restore, or lock an application, or transfer a document or application into the current application.
Status	Alt + A, S	View the status of the records, servers, documents, and imports in the current application.
Preferences	Alt + A, P	Set up the application preferences according to your preferences. For example, you can set the Application Catalog to open automatically when you sign on to the Application.

Generating DataEase System Forms

When you create an application, DataEase automatically creates three record entry forms that are used to store the information it needs to manage the data and objects in the application.

Enter the information that defines users, relationships, and custom functions into System forms in the same way you enter data in a form created with DataEase.

Note: To enter records in a System form, you must have a High security level.

DataEase System Administrator

When you create an application, you are automatically assigned the role of DataEase system administrator. The system administrator's responsibilities include assigning a Name, Password and Security Level to each user, and registering any Custom-Defined functions used in the application.

The system administrator has high level access to all DataEase operations in the application. If the application is linked to an SQL database, the system administrator works with the SQL system administrator.

SQL System Administrator

If you are the SQL system administrator, you must ensure that the Login Names you want used for each SQL server and the User Names for each SQL database exist for DataEase application users. User Names should have adequate user privileges and permissions to perform required operations on a server.

The SQL system administrator has high level access to SQL engine operations.

Using Windows to Set System Functions

When you install Windows on your system, you specify your system configuration and accept some of the Windows default settings. Later, you may choose to customize your Windows desktop. If you are satisfied with your settings, you do **not** need to change them to use DataEase.

Windows Control panel icons let you change several system configuration settings for Windows and DataEase. For example, double-click;

- Display to assign colors to portions of the screen
- Ports to set your communication parameters for serial ports used with your printer.
- Printers to install and configure new printers.
- Regional Settings to set date and currency formats.
- Sound to turn the warning beep on and off.

Controlling Access to an Application

When you choose **Application>>Users** DataEase displays the Users form, which lets you authorize other users to open the application.

The screenshot shows a Windows-style dialog box titled "Users Form". Inside, the heading "USER INFORMATION" is centered. Below it are four labeled input fields: "Name:" (a text box), "Password:" (a text box), "Security Level:" (a dropdown menu with a small arrow icon), and "Start-up Document:" (a text box). At the bottom of the dialog, there are two buttons labeled "Save" and "Done". To the left of these buttons, the text "(use Toolbar for other record actions)" is displayed.

Users Form Options

Name lets you assign the user a Name that he/she enters in the Application Security dialog when opening the application. Each Name must be unique, and can be up to 15 characters long.

Password lets you assign the user a Password that he/she enters in the Application Security dialog when opening the application, or restoring it from an icon. A Password can be up to 8 characters in length.

When you create an application, DataEase displays the Application Security dialog, which asks you for a Name and Password. DataEase automatically creates the first Users form record with a High Security Level, using this information.

If you do not enter a Name or Password, DataEase enters a Users record with no Name or Password. This entry allows anyone to open the application and access all DataEase documents and functions in both User and Designer View.

A Name or Password can be any combination of upper or lower case characters, spaces, symbols, or ANSI characters. To use as ANSI character, hold down Alt and type 0 and the 3-digit ANSI code from 0 to 255, using the numeric keypad.

To save a Users record, you must enter a value in the name field. Values for the other fields are optional.

Tip: To further simplify granting users access to an application, you can assign groups of users with the same needs and security level the same Name/Password combination.

Level lets you specify which Designer View and User View options a user can perform. DataEase provides seven basic security levels, ranging from High, which lets the user perform any task in User View and Designer View, to Low3, which lets the user perform only a few User View tasks.

If you don't fill in the Level field for a user, DataEase assigns a High Security Level.

You can also increase the security level for a particular document or field. For example, if you specify a High Security Level to view SALARY field values, a user who is assigned a Medium1 Security Level can view and modify other fields in the form, but not view, enter, or modify SALARY values.

The minimum DataEase security level and SQL user privileges and permissions required to perform Designer View and User View options are summarized in the following tables. You must specify DataEase security levels in DataEase and SQL privileges and permissions using a system administration program or utility.

A user must have access rights to the SQL server and database when the application he/she uses accesses a table stored on an SQL engine. To provide access to an SQL database, create a User Name that is a valid Login Name on the server.

Minimum DataEase Security Levels

For User to Perform DataEase Activity	Minimum DataEase Security Level			Minimum SQL Privileges and Permissions
	High	Medium	Low	
File>>New>>Form	Y	(3)	(3)	SELECT
File>>New>>Report	Y	(1)	(1)	SELECT
File>>New>>Menu	Y	-	-	N/A
File>>New>>Procedure	Y	(1)	(1)	N/A
File>>Open	Y	(2)	(2)	SELECT
File>>Delete	Y	(2)	(2)	Must be table owner
File>>Import	Y	Y	(2)	SELECT, INSERT, UPDATE
File>>Export	Y	Y	Y	SELECT
Edit>>Save, Save New, or Delete Records	Y	(2)	(2)	SELECT, INSERT, UPDATE, DELETE
Edit>>Multi-User	Y	Y	Y	N/A
View>>Records	Y	(2)	(2)	SELECT
Query>>New Report	Y	(1)	(1)	SELECT

(1) Medium and Low Users can Define and run, but not save, these documents.

(2) Minimum level for opening a document, entering, modifying, viewing, and deleting records vary on a Form to Form basis.

(3) Medium and Low can create tables if given rights on the Application Preferences Table Definition control. They can modify documents if given rights through Document Security.

For User to Perform DataEase Activity	Minimum DataEase Security Level			Minimum SQL Privileges and Permissions
	High	Medium	Low	
Application>>Users (Add, Change or Delete)	Y	-	-	N/A
Application>>Relationships (Add, Change, or Delete)	Y	Y	View Only	N/A
Application>>CDF's (Add, Change, or Delete)	Y	-	-	N/A
Application>>DB Links (Add, Change, or Delete)	Y	-	-	SELECT
Application>>Utilities>>Reorganize	Y	Y	Y	N/A
Application>>Utilities>>Backup	Y	Y	Y	SELECT
Application>>Utilities>>Restore	Y	-	-	CREATE, ALTER
Application>>Utilities>>Install	Y	-	-	CREATE, ALTER
Application>>Utilities>>Lock	Y	Y	Y	N/A
Application>>Status	Y	(2)	(2)	N/A
Application>>Preferences	Y	-	-	N/A

(1) Medium and Low Users can define and Run but not Save documents.

(2) Minimum level for opening a document, entering, viewing, modifying, and deleting records will all vary on a Form to Form basis.

Startup Document tells DataEase which document to display immediately after the user signs on to the application. You can assign a user any form, report, menu or procedure in the application as his/her startup document.

How to Define a User for an Application

1. Choose **Application>>users**. DataEase opens the Users form.
2. Enter a User Name in the name field and press Tab.
3. Optionally, enter a Password. And press Tab.
4. Choose a Security level. If you skip this field, DataEase automatically assigns the user a High Security Level.
5. Optionally, enter the name of a document in the current application in the Startup Document field.
6. Click Save.
7. To add another user, **Edit>>Clear Form** to display a blank record and repeat steps 2-6. When you have finished adding users, click Done.

To give a user named Robert access to the application, create a Users Record like the one below.

The Medium1 Security Level blocks his access to document layouts.

The screenshot shows a window titled "Users Form" with a tab icon on the left and standard window controls on the right. The main area is titled "USER INFORMATION" and contains the following fields:

- Name:** A text box containing "Robert".
- Password:** A text box containing "Ass't".
- Security Level:** A dropdown menu showing "medium1" with a small square icon to its right.
- Start-up Document:** A text box with a dropdown arrow on the right.

At the bottom left, there is a note: "(use Toolbar for other record actions)". At the bottom right, there are two buttons: "Save" and "Done".

Linking Tables by Using Match Fields

When you choose **Application>>Relationships** DataEase displays the Relationships form. The Relationships form lets you define a link - called a relationship - between any two tables, providing the tables contain one or more identical columns (called **Match** fields). When tables are related, you can combine data from these tables in a form or a report, and use the DataEase 'lookup' feature to automatically enter data in record entry forms built over these tables.

The record in the Relationships form shown below defines the relationship between the MEMBERS and FAMILY MEMBERS tables, based on the MEMBER ID match field that exists in both tables. This relationship tells DataEase that each row (called a record in a form) in the MEMBERS table is related to all the rows in the FAMILY MEMBERS table that contain the same value in the MEMBER ID column.

The screenshot shows the 'Relationships' dialog box in DataEase. It is titled 'Relationships' and has a standard Windows window border. The main area is divided into two sections: 'CHOOSE THE TABLES TO RELATE...' and 'OPTIONS..'.
 In the 'CHOOSE THE TABLES TO RELATE...' section, there are two text boxes: 'Records in' containing 'MEMBERS' and 'are related to records in' containing 'FAMILY MEMBERS'. Below these, there is a section 'based on the following fields being equal:' followed by three rows of input fields. The first row shows 'MEMBER ID' in the first field and 'MEMBER ID' in the second field, separated by an equals sign. The second and third rows are empty. To the right of these fields is the text '(define at least one set of fields)'.
 The 'OPTIONS..' section contains two main options. The first is 'Unique Relationship Names - records in each Table can be referenced as:' followed by two empty text boxes. Below this is a note: '(Note: if these tables are used in another relationship, Unique Names are required.)'. The second option is 'Referential Integrity - the effect a change to Main Form key field has on SubForm key', which has two dropdown menus. The first dropdown is set to 'Restrict (Don't Update)' and the second is also set to 'Restrict (Don't Update)'. At the bottom of the dialog are two buttons: 'Save' and 'Done'. A small text note at the bottom left says '(use Toolbar for other record actions)'.

Relationships Form Options

Records lets you choose the name of the primary table in the relationship.

Are Related to records in lets you choose the name of the secondary table in the relationship.

Based on the following fields being equal lets you choose a pair of columns, one from each table, that tells DataEase which records are related in the two tables. Records are related if the values in the columns are identical.

In DataEase, these column pairs are called Match fields. Match fields can have different names, but must be the same length and type. You can define up to three sets of Match fields in each relationship. If you specify multiple Match fields, all the Match fields must match, if records in the primary and secondary tables are to be related.

Note: Do not specify a Virtual field as the Match field for a relationship. Although Match field characteristics are usually similar, if the Match field value in the first form is derived, the Match field in the second form should not be. Also, a pair of Match fields should not both be of the Sequenced ID type.

Custom Relationship Name is an optional (but **recommended**) feature that lets you assign a unique name to a relationship, where necessary. When you create one relationship between two tables, DataEase uses the database table name to identify the relationship.

You **must** assign a Custom Relationship Name when:

- You create two or more relationships between the same two tables. For example, MEMBERS and FAMILY MEMBERS have two relationships: one based on MEMBER ID values, and the other based on TELEPHONE values.
- You create a relationship between two records in one table; that is, the primary table and the secondary table in the relationship are the same. For example, each employee works for one manager, and the manager is also an employee. Therefore, if an EMPLOYEES record contains the field MANAGER, the relationship is to another record in the EMPLOYEES form.
- You are building a relationship between two SQL tables, and you want to change the way DataEase joins tables in the relationship. See **Changing the way DataEase Joins Tables**.

A Custom Relationship Name cannot be the same as any other form name or relationship name already used in the application. Pick a meaningful name, to make it easier for others to maintain the application.

Use the Custom Relationship Name to identify the second relationship for a lookup Form Name during form design, in Multiforms and reports.

The figure below shows how you enter the Custom Relationship Name for the second relationship in the Relationships form. The form contains two Custom Relationship Name fields - one for the primary table, and one for the secondary table.

Relationships

CHOOSE THE TABLES TO RELATE...

Records in are related to records in

based on the following fields being equal: (define at least one set of fields)

=

=

=

OPTIONS..

Unique Relationship Names - records in each Table can be referenced as:

(Note: if these tables are used in another relationship, Unique Names are required.)

Referential Integrity - the effect a change to Main Form key field has on SubForm key

(use Toolbar for other record actions)

Save **Done**

Referential Integrity tells DataEase how to treat Subform records when the Matching Main form record is modified or deleted, DataEase lets you choose from the Referential Integrity Options described below:

- **Cascade** updates the Match field value in related Subform records, when you modify a Main form record. If you delete a Main form record, DataEase deletes all related Subform records. Use Cascade to prevent **orphaned** records.
- **Set Null** changes the Match field value in related Subform records to null (blank) when you modify or delete a Main form record. Use Set Null when you plan to assign another value to the Subform records in the future.
- **Restrict** does not change any value in related Subform records when you modify or delete a Main form record.
- **Server C** lets the SQL engine enforce its own Cascade referential integrity rule when you modify or delete a Main form record.
- **Server SN** lets the SQL engine enforce its own Set Null referential integrity rule when you modify or delete a Main form record.

If you define referential integrity on the SQL engine, the engine always updates the related records (in one or more tables) when the Match field value is modified, or a record deleted, **regardless** of whether the tables are part of a DataEase Multiform or not.

Note: If you choose Server C or Server SN, you must define a referential integrity rule on the SQL engine. If you do not, you may end up with orphaned Subform records whenever you modify or delete Main form records.

As shown in the screenshot on the next page, the Relationships form contains two fields that let you set a Referential Integrity Option for each table in the relationship.

You must set Referential Integrity in the field under the Subform. If you enter a value in the Main form table, DataEase ignores it.

Relationships

CHOOSE THE TABLES TO RELATE...

Records in

MEMBERS

are related to records in

FAMILY MEMBERS

based on the following fields being equal:

(define at least one set of fields)

TELEPHONE

=

TELEPHONE

=

=

OPTIONS..

Unique Relationship Names - records in each Table can be referenced as:

R_FAMILYPHONE

R_MEMBERPHONE

(Note: if these tables are used in another relationship, Unique Names are required.)

Referential Integrity - the effect a change to Main Form key field has on SubForm key

Restrict (Don't Update)

Cascade (Update)

(use Toolbar for other record actions)

Save

Done

Referential Integrity is ignored in the Main form

Referential Integrity is required in the Subform

In the relationship shown above, if MEMBERS is the Main form and FAMILY MEMBERS is the Subform, DataEase applies the Cascade rule when you modify or delete MEMBERS records.

Note: Unlike the character-based version of DataEase, DataEase applies referential integrity **only** when you modify or delete records in a Form View. If you modify or delete records in Table View, DataEase does not update related records.

The tables below summarize how Subform records are treated under each Referential Integrity Option.

Referential Integrity Rules	
Effect on FAMILY MEMBERS Records	
If you Delete the MEMBERS record, DataEase...	
Cascade	Deletes related FAMILY MEMBERS records
Set Null	Changes the match value in related FAMILY MEMBERS Records to null (blank).
Restrict	Keeps the related FAMILY MEMBERS records.

DataEase International Ltd

Effect on FAMILY MEMBERS Records	
If you Modify the Match value in the MEMBERS record, DataEase...	
Cascade	Changes the match value in related FAMILY MEMBERS records to the new value in the MEMBERS record.
Set Null	Changes the Match value in related FAMILY MEMBERS records to null (blank).
Restrict	Keeps the original Match value in related FAMILY MEMBERS records. (So they are no longer related).

When you have defined your relationship, the last two buttons on the Relationships Form are:

Save, which tells DataEase to save the current Relationship record to disk.

Done, which tells DataEase to close the Relationships form

Changing the Way DataEase Joins SQL Tables

The three types of joins are summarized below:

- **Outer Join** - selects all parent (primary table) records and all child (related table) records.
- **Inner Join** - selects only those parent records with at least one matching child record.
- **No Join** - selects all parent records, then sends a separate statement to select child records as needed. No Join is useful if the relationship is used for record entry operations that access data from more than one table (e.g. Multiform, lookups).

When a document requires data from two database tables, DataEase temporarily joins the tables using a left outer join (selects all parent records regardless of whether any matching child record exists).

In some cases, you may improve performance by changing the way DataEase joins the tables. DataEase lets you prevent the tables from being joined or change the join to an inner join, if your SQL engine supports these changes.

The following rules apply to SQL servers only.

To use an inner join, insert the prefix **inner:** before the Custom relationship Name. To prevent the tables from being joined, use the prefix **nojoin:**

For example, to create an inner join between the MEMBERS and FAMILY MEMBERS tables, enter "inner:R_FAMILYPHONE" as the Custom Relationship Name.

How to Define a Relationship

1. Choose **Application>>Relationships**, and DataEase displays the Relationships form.
2. Click the drop-down arrow to the right of the field beneath "Records in". Choose the name of the database table for the first form. Press Tab. Click the drop-down arrow beside the next field, and choose the name of the second table. Press Tab.
3. Enter the Match field(s) on which the relationship is based.
4. Click the drop-down arrow in the first column. Click the name of the Match field for the first form. Press Tab. Click the arrow in the second form, and choose the name of the second Match field. Press Tab.

Enter additional pairs of Match fields, if required.

5. Type the Custom Relationship Name (optional, but recommended).
6. If the two forms constitute a Multiform, choose the Referential Integrity option in the Referential Integrity field (under the Subform table name).
7. Click **Save** at the bottom of the Relationships form, and then click **Done** to close the form.

How to Create a Multiform

1. Choose **Application>>Relationships**, and DataEase displays the Relationships form.
2. Click the drop-down arrow to the right of the field beneath "Records in". Choose the name of the database table for the first form. Press Tab. Click the drop-down arrow beside the next field, and choose the name of the second table. Press Tab.
3. Enter the Match field(s) on which the relationship is based.
4. Click the drop-down arrow in the first column. Click the name of the Match field for the first form. Press Tab. Click the arrow in the second form, and choose the name of the second Match field. Press Tab.
5. Enter additional pairs of Match fields, if required.
6. Type the Custom Relationship Name (optional, but recommended).
7. Choose the referential Integrity Option in the Referential Integrity field (under the Subform table name).
8. Click **Save** at the bottom of the Relationships form, and then click **Done** to close the form.
9. Open the Main form in Designer View and choose **Objects>>Subform**. Place the Subform wherever you want it in the layout.
10. When you display a record in User View, all records related to the Main form by the Match fields appear in the Subform.

The screenshot shows the 'MEMBERS' form in DataEase. The main form contains fields for member information: Last Name (Perrault), First Name (George), Initial (R), Street (38 Whitney Avenue), City (Essex), State (CT), Zip Code (06426-0000), Expiration Date (09/18/94), Telephone ((203)448-5821), Favorite Activity (SNORKEL), and Method of Payment (AMERICAN EXPRE). Below these fields is a 'Family Members' subform, which is outlined in red. The subform contains a table with columns for First Name, Last Name, and Date of Birth, listing family members: George Perrault (10/19/50), Patricia Perrault (07/22/75), Daniel Axelrod (02/27/78), Joseph Perrault (03/14/82), and Carol Perrault (07/03/84). To the right of the subform is a 'Membership Fees' section showing Adult Annual Fee (\$35.00), Child Annual Fee (\$15.00), Adult Fees (140), Child Fees (75), and Total Due (215.00). On the left side of the main form, there is a sidebar with buttons for New, Save, Delete, Close, Clubs, and Reservations, and a Member ID field (00002).

The MEMBERS form is a Multiform. The outlined area - FAMILY MEMBERS - is a Subform.

Custom Defined Functions

A Custom-Defined Function (CDF) is a program that expands or modifies the action performed by one or more of the predefined DataEase functions. You must write a CDF outside of DataEase, using C or Assembler, or another supported programming language. A CDF can be executed in several ways;

- By clicking on a field with a Derivation Formula or Validation Formula that calls the CDF.
- By clicking on a Button or Picture Object that call the CDF.

For example, suppose you create an inventory part number by joining the values from two fields, and then adding a 3-digit number to the end. Instead of using several DataEase **jointext** functions, you can create a CDF called Part that manipulates the data.

To integrate a CDF with DataEase, you must perform two steps outside of DataEase, and two more steps using DataEase.

- Write the function. For information on writing CDFs, see Appendix B, **Writing a CDF**.
- Compile and link the function. For information on how to compile and link the object code into a Windows DLL file that can be called from DataEase, see **Creating a Windows Dynamic Link Library File** in Appendix B.
- Register the function. See the section **Registering a CDF**.
- Execute the function. See the section **Using a CDF with DataEase**.

The four steps required to create a CDF and integrate it with DataEase are explained in detail in **Appendix B**, which contains an example CDF. We recommend that you read through Appendix B before writing or using CDFs.

Registering a CDF

When you choose Application>>Custom Functions, DataEase opens the Custom Functions form. This form is used to register a CDF with your application. The Custom Functions form lets you view, modify, and/or delete Custom Functions records.

The Custom Functions Registration Form. Note that it includes the name and type of data for each parameter passed to the function.

Custom Defined Functions -- Description Template			
Function Name:		Rounding	
OS Type:		<input type="radio"/> DOS <input type="radio"/> OS/2 <input type="radio"/> DOS16M <input checked="" type="radio"/> WINDOWS	
Description:		Custom Rounding, Windows Version	
CDF Library Name:		RNDWIN.DLL	
Return Type:		Double	
		DOS Mem Req't:	
		DOS Entry Point:	
Parameters			
	Name:	Type:	
1.	FloatPointValue	Double	6.
2.	FractionalConstant	Double	7.
3.			8.
4.			9.
5.			10.
(use Toolbar for other record actions)			
		Save	Done

Custom Functions Form Options

Function Name is the name you assign to the CDF. A Function Name can have up to 32 characters. Each record in the Custom Functions form must have a unique Function Name for each operating system.

OS Type tells DataEase which type of operating system the specified CDF Library file is for (DOS, DOS 16M (only), OS/2, or Windows).

Description is a meaningful description of the CDF. The description can have up to 40 characters. DataEase displays the Description when the user requests help on the function.

CDF Library Name is the name of the CDF DLL file to which the function belongs. In Windows, enter the complete pathname of the CDF DLL file (including the drive and directory). You must also enter the directory in the PATH command of your system's AUTOEXEC.BAT file so Windows can find the library.

Return Type specifies the type of value returned by the function. Click on one of the six types of return values from the drop-down list box. The types are described in the table below.

Return Value Types

Type	Used for a Function that returns..	Explanation
Int	An integer.	Two-byte integer value.
Long	A floating point value. All DataEase floating point values are double precision.	Four-byte integer value.
Float		Single precision floating point.
Double		Double precision floating point. Double (BC) conforms to the Borland C double return type.
Double (BC)		You must use Double (BC) in place Of a double when using a Borland C Compiler.
String	The address of a Text, Numeric String, Date or Time field.	Hexadecimal address of a value in an ASCII string type field.

Note: To save a Custom Function record, you must enter values in the Function Name, Library Name, and Return Type fields.

DOS Memory Requirement is provided for compatibility with character-based DataEase 640k. When you enter a new Custom Functions record, leave this field blank.

DOS Entry Point is provided for compatibility with character-based DataEase. When you enter a new Custom Functions record, leave this field blank.

Parameters specifies the values that can be passed as parameters to the function. A function can pass data from the current record, a constant, a temporary or global variable, the result of a predefined DataEase function or CDF, or any DataEase expression, such as **lookup** or **count of**. You can enter as many as 10 parameters for each function. Use:

- Name to enter the label that describes the parameter. A Parameter name can have up to 30 characters.
- Type to enter the type of data DataEase passes to the function by clicking on your selection from the drop-down list box. Each parameter must be one of the types found in the Return Value Types table, shown above.

If you modify one or more function parameter types, you must also modify the reference in the Derivation Formula, Validation Formula, or Action for a Button or Picture object.

Save saves the current Custom Function to disk.

Done closes the Custom Functions form.

Using a CDF with DataEase

Once you have entered a record for a function in the Custom Functions form, you can use the CDF in a Derivation Formula, Validation Formula, in the Action for a Button or Picture object, or anywhere you can use one of the predefined DataEase functions.

When a CDF is executed from a Derivation Formula, DataEase uses the value returned by the function as the new value for the field, or as part of the calculation used to determine the field value.

When a CDF is executed from a Validation Formula, DataEase uses the value returned by the CDF as the Formula, or as part of the Formula used to restrict values that can be entered into the field.

When DataEase encounters a CDF in a formula or procedure, it:

1. Searches the Custom Functions form for a corresponding CDF record.
2. Loads the CDF Dynamic Link Library file specified in the CDF Library Name field in the Custom Functions record.
3. Executes the function.

Note: When a CDF Library file is loaded, it stays loaded until you close all documents from which a CDF in the file is called.

Linking Databases in a Client-Server Environment

DataEase can be used as a front-end tool (i.e. the client) in a Client-server environment.

In a Client-server environment, each workstation receiving data is an intelligent machine capable of processing data in numerous ways, such as calculating or evaluating the data.

Structured Query Language (SQL) is used as a common intermediary language in the Client-server environment, making it possible for desktop applications (like those you create with DataEase) to manipulate mainframe, minicomputer, and local PC databases.

The advantages of adopting Client-server architecture include reduced costs for processors, network, application development, and maintenance. Improved performance by dividing labor between the client and server processors, and higher productivity through the use of user-friendly client tools.

DataEase lets you link an SQL database or a foreign database (such as dBASE and Paradox) to your application. A foreign database is created in a database management system other than DataEase.

Each database may be accessed by workstations running DataEase, by workstations running other front-end products, and, in some cases, by terminals connected to a central processor.

Be aware of other systems that add or change data in the databases your application accesses. You must not violate established procedures for inserting or updating data in an external database.

SQL Database Link Requirements

Before you can link an SQL database to your application you must:

- Have a valid Login Name that will give you access to the data you require on the SQL server. Consult the SQL server's administrator to obtain a Login Name.
- Know the database engine **type**, the **name** of the server that stores or accesses the database, and the **name** of the database.

Linking a DataEase Application to an External Database

When you choose **Application>>Database Links**, DataEase opens the Database Links dialog. This dialog lets you link your application to an external database on a database server to which your computer is physically connected.

Note: When you choose a server, DataEase will prompt you to enter a valid Login Name that gives you access to the data that you require on that server.

Database Links Dialog Options

Link Name lets you assign a name to the database. The Link Name is used to refer to the database from within your application. The same Link Name is shared by all DataEase workstations that use the application. You may want to use the actual database name as specified on the server, or a more descriptive name. After you enter the Link Name, DataEase automatically enters that name in the Database Name text box.

When you link a database to your application, DataEase stores its name in the application. Since DataEase does not have to log on to the server to generate this information, the names of all linked database tables are displayed quickly in the dialog.

Tip: If databases on two servers use the same name, use Link Name to assign different names for use within your application.

Engine Type tells DataEase the type of engine that stores the database you want to link to your application. When you click on the Engine Type drop-down arrow, DataEase lists all the engine types (e.g. SQL Server, Oracle, ODBC, etc).

Note: If you are using an ODBC (Open Database Connectivity) driver to link to a foreign database (such as dBASE or Access), you must use the ODBC Administrator tools to set up your ODBC data sources before you can create a DataEase database link. See your ODBC documentation for further instructions.

Server Name tells DataEase the name of the server that stores the database you want to link to your application.

If you are linking to an SQL database, enter the name of the server that stores or accesses the database. The server is the computer running the specified database engine software.

For example, Club ParaDEASE's Sales and Reservations staff uses data stored on a minicomputer, which is recognized on the network as the **Finance** server. Club developers specify **Finance** as the server for DataEase.

Database Name tells DataEase the name of an existing database you want to link to your application. Enter the name of a database that exists on the specified server.

Tables Available lists all tables that you can access in a linked database. To view the list for a database link, double-click on the Link Name.

When you choose Reservations as the database name, DataEase lists all the table names in the Tables Available box.

Default Link automatically displays the name of the default database that is associated with the application. To change the default database, choose **File>>New>>Form**, or **File>>New>>Report**, to display the New Document dialog. Change the database in the Database box on the lower right of the New Document dialog.

Add saves the link from a DataEase application to the external database you specify using the controls located above the buttons in the dialog.

When you add a new database link, DataEase displays the following messages:

Loading Database Engine Driver...

Logging on to the server Server Name...

Opening the database Database Name...

...where Database Engine, Server Name, and Database Name are the actual values from your system.

When you add a link, DataEase automatically lists the tables in the specified database in the Tables Available box.

Build Forms lets you select multiple tables at one time to use with your application. Select from the Tables Available list. This is faster than selecting tables one at a time using the New Document dialog.

Refresh updates the list of tables and synchronizes each DataEase table with the SQL table definition on the server. You must refresh the database link if any table is modified by another front-end product, or another DataEase application.

To refresh a database, double-click on the Link Name and click Refresh. When DataEase displays an Alert message, click OK.

Rename lets you change the Link name of an external database. When you click Rename, DataEase displays the Rename Database Link dialog. All documents using the original link will be connected to the new Link Name you specify.

Rename Database Link Dialog Options

Rename Connection displays the name of the database link to be renamed.

To tells DataEase the new name you choose for the link. Enter the new name.

Delete removes a database link from your application. To delete a database link, double-click on the Link Name and click Delete.

Done closes the Database Link dialog.

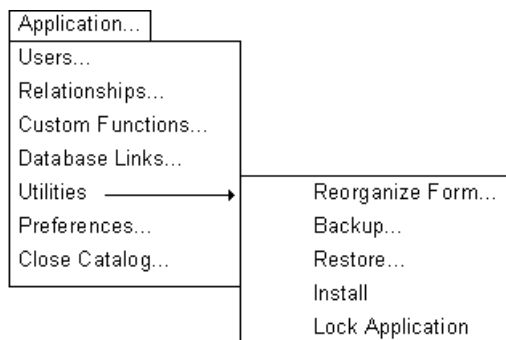
Note: Any documents that use tables based on a deleted link will be orphaned and not usable. Therefore you should not delete a link if documents may later need to use the linked database tables.

How to Link a DataEase Application to an External Database

1. Choose **Application>>Database Links**, and DataEase opens the Database Links dialog.
2. In the Link Name text box, enter the name by which you want to refer to the database from within your application.
3. When you click on the Engine Type drop-down arrow, DataEase lists the supported engine types. Choose the appropriate Engine Type - Oracle, ODBC, SQL Server, or whatever.
4. Before you enter the name of the server, you must know the name of the server that stores or accesses the database. You must also know the name of the database, and have a valid Login Name. Enter the name of the server (e.g. ServerA1) in the Server name text box. Enter the Login Name when DataEase prompts you.
5. Click the Database Name text box and enter the name of a database that exists on the specified server.
6. To be sure you specify the right database, scroll through the table names available in the database, as listed in the Tables Available list box.

Maintaining an Application

When you choose **Application>>Utilities**, DataEase displays the Utilities cascade menu shown below.



Utilities Cascade Menu Options

Reorganize Form lets you reorganize a form that has already been saved. Reorganization recovers disk space from records that are marked as deleted, rebuilds indices for all indexed fields, and reorganizes data that is inconsistent.

Backup Application lets you copy your entire application to floppy disks or a storage device other than the one which contains your application.

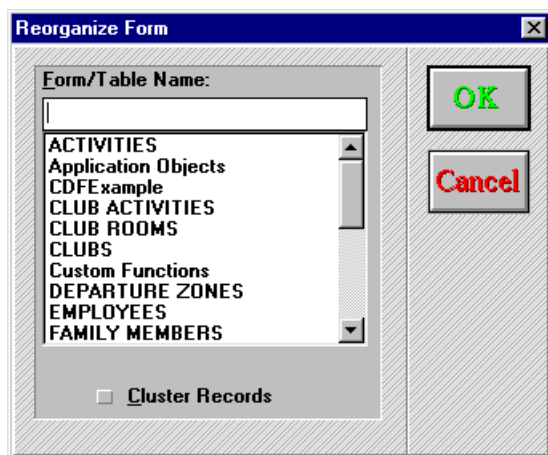
Restore Application lets you restore an application using a backup copy made with the Backup Application option.

Install Application lets you transfer one or more documents from one DataEase Application into another, or transfer an application created in the character-based version of DataEase into DataEase without affecting the source application.

Lock Application lets you prevent other users from opening the current application while you perform application administration functions or batch report processing.

Reorganizing a Form to Recover Disk Space

When you choose **Application>>Utilities>>Reorganize Form** DataEase displays the Reorganize Form dialog, which lets you reorganize a form that has already been saved. Reorganization recovers disk space from records that are marked as deleted, rebuilds indices for all indexed fields, and reorganizes data that is inconsistent. This option opens the dialog shown below, which lets you choose the form you want to reorganize.



Note: During reorganization, DataEase creates a temporary table to hold the reorganized data. Therefore there must be sufficient free space on the disk to hold both the old and reorganized data files.

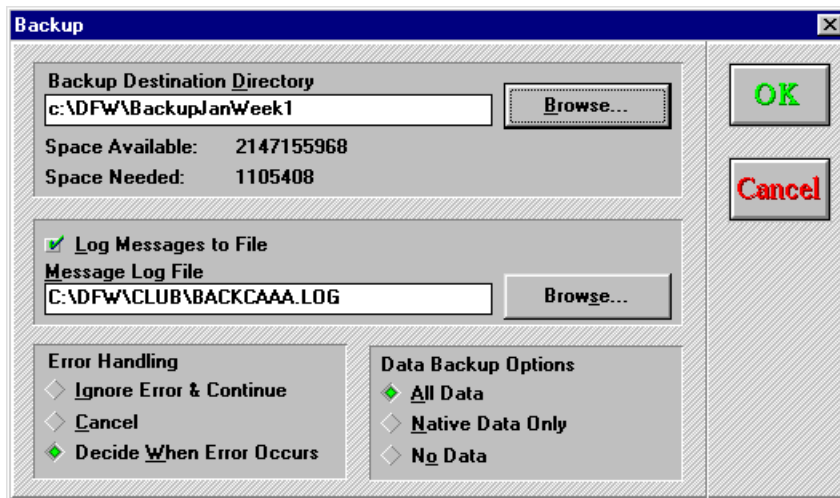
How to Reorganize a Form

1. Choose **Application>>Utilities>>Reorganize Form**. DataEase opens the Reorganize Form dialog.
2. Highlight the name of the form and click OK. You must choose the form that defines the table (DataEase automatically excludes forms which simply use the table).
3. DataEase recovers disk space from records that are marked as deleted, rebuilds indexes for all indexed fields, and reorganizes inconsistent data.

Backing Up Application Files

When you choose **Application>>Utilities>>Backup**, DataEase displays the Backup dialog, which lets you backup your application. You can lose files due to disk drive failure, power failure, or simply human error, such as inadvertently deleting records. For this reason, we recommend that you backup **at least** once a week, and after each protracted record entry session.

Note: DataEase Backup Application runs faster than an Operating System backup, because DataEase does not copy program files, index files (which are rebuilt when you restore), or deleted records.



Backup Dialog Options

Backup Destination Directory lets you select the backup destination directory and tells you how much storage space (in bytes) you need for your backup.

Browse displays the Windows directory. Click on the drive and select the pathname where you want to restore your backup.

Log Messages to File lets you store system messages in an ASCII text file during backups. The default log filename is in the format BACKDAAA.LOG, where D is the first letter of the application and AAA is a letter combination used to prevent duplicate file names.

For example, if you backup the Club ParaDEASE application, and the log file BACKAAA.LOG exists in the application directory, DataEase names the default log file BACKAAB.LOG instead.

Browse displays the Windows directory. Click on the drive and select the pathname where you want to store the Message Log file.

Error Handling lets you control how the system handles errors during backup. Choose:

- **Ignore Error and Continue** to continue your backup when an error occurs. Select this option if no one will be present to handle any errors that occur during the backup.
- **Cancel** to stop the backup when an error occurs. Select this option if you require an error-free backup.
- **Decide When Error Occurs** to decide whether to continue or cancel the backup as DataEase encounters each error. Obviously, someone needs to be present to handle error messages.

Note: When you choose **Application>>Utilities>>Backup**, DataEase locks the application from other users until the backup is complete. If you choose Decide When Error Occurs, be sure to stand by. If an error occurs, DataEase displays a dialog and waits for you to respond.

Data Backup Options lets you select the data copied during backups. Choose:

- **All Data** to copy DataEase documents, tables, and data, including SQL Tables and data.
- **Native Data Only** to copy DataEase documents, tables and data (but excluding any SQL tables and data).
- **No Data** to copy DataEase documents and tables only, excluding any data.

Note: When backup begins, if the target directory is not empty or a target diskette has been previously used as a DataEase Backup, DataEase asks whether or not you wish to continue with the backup. If you continue, DataEase overwrites old files in the target directory with new files of the same name.

Tip: We recommend that you keep at least two backups of each application. Make the first copy at the end of Week#1, and a second copy at the end of Week#2. At the end of Week#3, you can re-use Week#1 diskettes (or tape, or other media).

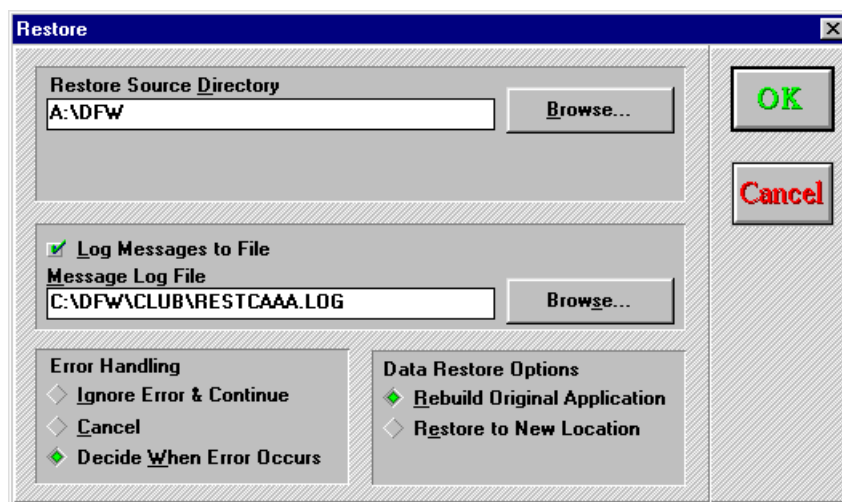
How to Backup an Application

1. Choose **Application>>Utilities>>Backup**. DataEase opens the Backup dialog.
2. Enter a directory in the Backup Destination Directory box.
3. If you want to store system messages in a file, check Log Messages to File. DataEase displays a default directory and log file in the Message Log File box.
4. Choose an Error Handling option. Ignore Error & Continue, Cancel, or Decide When Error Occurs.
5. Choose a Data Backup option. All Data, Native Data Only, or No Data.
6. Click OK to close the dialog. If you are backing up to a floppy drive, DataEase displays a dialog that asks you to insert the first backup diskette.
7. Insert the first diskette in the floppy drive and click OK. DataEase displays a dialog during the backup, and another dialog when the backup is completed. If you entered a Message Log File in Step 3, the dialog asks if you want to view it.
8. Click OK to return to the application, or click Yes to view system messages. If you view the messages, double-click the control box to close the window and return to the application.

Restoring an Application

When you choose **Application>>Utilities>>Restore**, DataEase displays the Restore dialog, which lets you restore an application using a backup copy made with **Application>>Utilities>>Backup**.

Note: To restore backup copies of files made using the Operating System Backup command, use the Operating System Restore command. DataEase Restore Application is slower than the Operating System Restore because DataEase rebuilds all index files from scratch.



Restore Dialog Options

Restore Source Directory lets you select the directory where your backup copy is located.

Browse displays the Windows directory. Click on the drive and select the pathname where your backup is stored.

Log Messages to File lets you store system messages in an ASCII text file while restoring an application. The default directory is where the new application is located when the default filename is in the format RESTDAAA.LOG, where D is the first letter of the application name, and AAA is a letter combination used to prevent duplicate file names.

For example, if you backup the Club ParaDEASE application, and the log file RESTCAA.LOG exists in the application directory, DataEase names the default log file RESTCAAB.LOG instead.

Browse displays the Windows directory. Click on the drive and select the pathname where you want to store the Message Log file.

Error Handling lets you control how the system handles errors during Restore. Choose:

- **Ignore Error and Continue** to continue your Restore when an error occurs. Select this option if no one will be present to handle any errors that occur during the Restore.
- **Cancel** to stop the Restore when an error occurs. Select this option if you require an error-free Restore.
- **Decide When Error Occurs** to decide whether to continue or cancel the Restore as DataEase encounters each error. Obviously, someone needs to be present during the Restore to handle error messages.

Note: When you choose **Application>>Utilities>>Restore**, DataEase locks the application from other users until the Restore is complete. If you choose Decide When Error Occurs, be sure to stand by. If an error occurs, DataEase displays a dialog and waits for you to respond.

Data Restore Options lets you restore the application in the original or a new native or SQL database. Choose:

- **Rebuild Original Application** to restore the data to the way it was when the data was backed up. Select this option if you want the forms to be reconnected to the Native or SQL tables they were associated with when the backup was performed.
- **Restore to New Location** to restore the data into tables in a different database engine location. Select this option if you want to restore the application using a different database engine type. DataEase creates a form and Native or SQL tables for all the relevant forms on the backup disk.

When you choose Restore to New Location and click OK, DataEase displays the Restore to New Location dialog. This dialog lets you select a database engine type and enter a server and database name.

Restore to New Location Dialog Options

Engine Type indicates the database engine type, which in turn determines the database format during the restore.

Server Name indicates the location of the database engine and database.

Database name indicates the database where the application is restored.

DataEase creates a new SQL table using the Form Name as the SQL table name. If a table with the same name as the form already exists in the SQL database, DataEase appends a numeric suffix to the table (starting with 02), until a unique table name is created.

If you restore data into a form that uses an SQL table, you must have CREATE TABLE permission in the target SQL database. If you do not have CREATE TABLE permission, DataEase displays an error message.

To restore data into a form that uses an SQL table, you must have INSERT and DELETE permissions for the table.

If you define the rules, triggers, defaults, etc, that are part of your application as DQL procedures (using the EXEC SQL command in DataEase), the procedures are restored with the report definition files. Once the restore is complete, just run the procedure that defines the rules, etc, to recreate them in the new location.

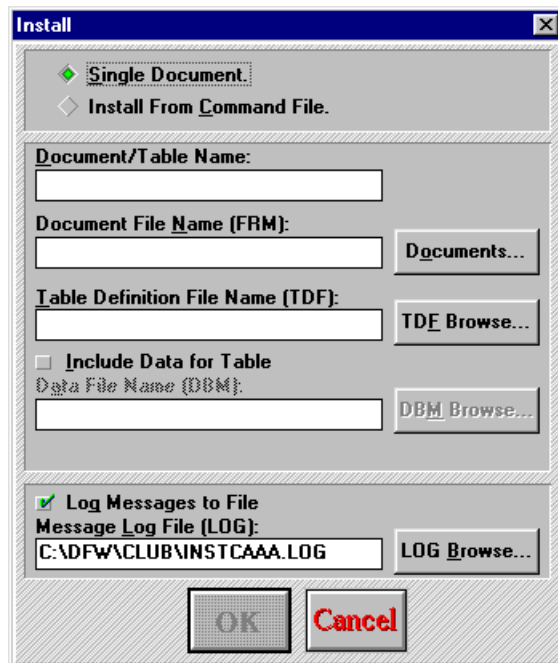
How to Restore an Application

1. Create a DataEase application by choosing **File>>New Application**. DataEase opens the New Application dialog. Select an empty directory and enter a filename. Click OK.
2. Choose **Application><Utilities>>Restore**. DataEase opens the Restore dialog.
3. Enter the directory with the backed up application in the Restore Source Directory box.
4. If you want to store the system messages in a file, check Log Messages to File. DataEase displays a default directory and default log file in the Message Log File box.
5. Choose an Error Handling option. Choose Ignore Error & Continue, Cancel, or Decide When Error Occurs.
6. Choose a Data Restore Option: Rebuild Original Application or Restore to New Location.
If you choose Restore to New Location, click OK. DataEase displays the Restore to New Location dialog. Select an engine type, enter a server and database name, and click OK to close the Restore to New Location dialog.
7. Click OK to close the Restore dialog. If you are restoring an application from floppy diskettes, DataEase displays a dialog asking you to insert the first restore diskette. If you insert a diskette in the wrong order, DataEase displays a dialog asking you to insert the correct diskette.
8. Insert the diskette in the floppy drive and click OK. DataEase restores the application you backed up, and overwrites the new application. DataEase displays a dialog during the restore and another dialog when the restore is complete. If you entered a Message Log File in Step 4, the dialog asks if you want to view it.
9. Click OK to close the current application, or click Yes to view system messages. If you view the messages, double-click the control box to close the window and the current application.

Note: After you restore an application, DataEase closes it and displays the Desktop menu. To open the restored application, choose **File>>Open Application**.

Installing Documents

When you choose **Application>>Utilities>>Install**, DataEase displays the Install dialog, which lets you copy one or more documents from one DataEase application into another. You can also copy one or more DataEase Express for Windows documents into a DataEase application without affecting the source application.



Install Dialog Options

Single Document lets you copy an existing DataEase or DataEase Express for Windows document into the current application.

Install From Command File lets you run an Installation Command file that installs an entire application or group of documents into the current application, in a single operation. The Installation Command file contains a series of special commands that tell DataEase which operations to perform.

Note: Only users with High Security level can install data into an application. If you try to install data with a lower security level, DataEase displays an error message.

Single document is the default option. It displays the following options:

Document/Table Name displays the name of the document or table you want to install.

Document File Name (FRM) displays the complete DOS filename and pathname of the document you want to install. Document files have an .FRM filename extension.

Documents lets you search for and select the document you want to install.

Table Definition File Name (TDF) displays the name of the table definition file of the document you want to install. Table definition files have a .TDF file extension. DataEase automatically fills in this value when you select a document that defines a table.

TDF Browse lets you search for and select the table definition file of the document you want to install.

Include Data for Table lets you install the data associated with the form definition and table. Click on this option if you want to install the associated data.

Data File Name (DBM) displays the data file filename associated with the form and table. Data files have a .DBM filename extension.

DBM Browse lets you search for and select the data file of the document you want to install.

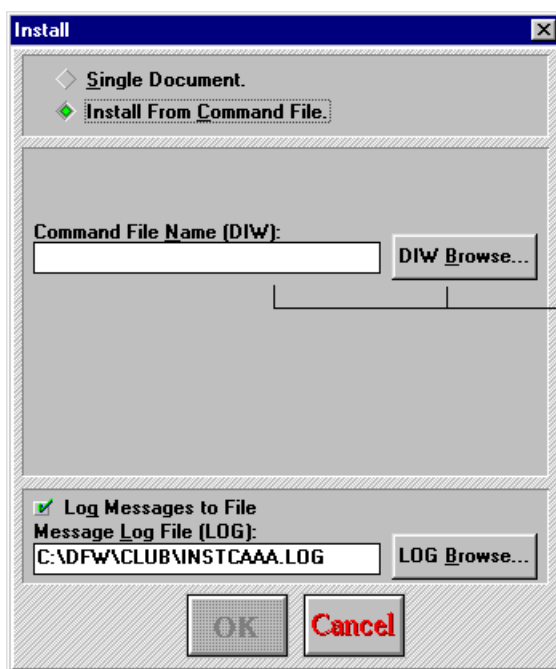
Log Messages to File lets you store system messages in an ASCII text file during installation.

Message Log File (LOG) displays the LOG filename when you check Log Messages to File, and lets you enter a name for the new LOG file.

LOG Browse lets you search for and select an existing LOG file to display in the Message Log File (LOG) box.

Note: If you install a DQL Procedure that uses a Data-entry form, DataEase automatically installs both the Data-entry form and the DQL Procedure.

When you choose Install From Command File, DataEase lets you install documents using an Installation Command File. The Installation Command File tells DataEase which document(s) to install into the current application.



The Install dialog lets you install documents using an Installation Command file created in an ASCII text editor. Click the DIW Browse button to search for the installation Command file.

You can create an Installation Command file in an ASCII text editor, such as Windows Notepad. To tell DataEase which documents to install in the current application, enter commands in the Installation Command file. These commands include the document filename and the complete DataEase-assigned DOS filename for each document.

DataEase automatically assigns a filename extension to each document depending on its type. DataEase assigns the DOS filename extension .FRM to a form definition, .TDF to tables, .DBM to data files, and .DBI to imports. For example, the DOS filename DataEase assigns to the MEMBERS form in Club ParaDEASE is MEMBERS.FRM.

You can use any combination of the commands in the table show below to create an Installation Command file, using an ASCII text editor. The Installation Command file you create can contain as many commands as you require. A command can occupy more than one line, and a line can contain more than one command. After you complete the Installation Command file, save it with the filename extension .DIW.

Installation Command File Commands

To	Enter this command in the .DfW file	Example
Install a document that uses a table.	Install <document name> from: <DOS filename.FRM> ;	Install MEMBERS from: MEMBCAAA.FRM ;
Install a document that defines a table	Install <document name> from: <DOS filename.FRM table: <DOS filename .TDF> ;	Install MEMBERS from: MEMBCAAA.FRM table: MEMBCAAA.TDF ;
Install a document that defines a table and the data associated with the table	Install <document name> from: <DOS filename.FRM table: <DOS filename .TDF> data: <DOS filename.DBM> ;	Install MEMBERS from: MEMBCAAA.FRM table MEMBCAAA.TDF Data: MEMBCAAA.DBM ;
Install a table	Install <table name> table: <DOS filename.TDF> Data: <DOS filename.DBM> ;	Install CLUBS table: CLUBVCAAA.TDF data: CLUBCAAA.DBM ;
Install additional data, such as Relationships, User data, and CDFs.	Install <system filename> from: <DOS filename.DBM> ;	Install Relationships from: RELACAAA.DBM ;
Install a DataEase DOS .CFM (form view) and the matching .TDF (table definition)	Install <view name> from: <CFM name> table: <TDF name> ;	Install SALES from: SALECAAA.CFM table: SALECAAA.TDF ;
Install a DataEase DOS .CFM (form view) without the .TDF (table definition)	Install <view name> from: <CFM name> dataref: <table name> ; or Install <view name> from: <CFM name> dataref: <DBM name> ;	Install CUSTOMER from: CUSTCAAA.CFM table: dataref: CUSTOMER ; or Install CUSTOMER from: CUSTCAAA.CFM table: dataref: CUSTCAAA.DBM ;

To	Enter this command in the .DfW file	Example
Install an SQL Table	Install <document name> from: <.FRM name> Table: <.TDF name> data: <.DBM name> Engine: <engine name> serverloc: <server location> Database: <sql db name> Owner: <owner name> sqltable: <sql table name> Owns: <y, n, yes no> ;	Install test from: testaaaa.FRM table: testaaaa.TDF Data: testaaaa.DBM engine: Oracle Serverloc: saturn database: default owner: usera Sqltable: test owns: yes ; Engine: the SQL engine, such as Oracle or SQL server. Serverloc: the server location of the SQL Database. Database: The SQL database that the table resides in. Owner: The table owner. SQLTable: the table name of the SQL database. Owns: tells you if the DataEase table owns or uses the SQL table.
Replace a document in the current application with a new version.	replace <document name> from: <DOS filename.FRM> table: <DOS filename.TDF> ;	Replace MEMBERS from MEMBCAAA.FRM Table: MEMBCAAA.TDF ;
Replace data, such as Relationships, user data, and CDFs.	replace <system filename> from: <DOS filename.DBM> ;	Replace Relationships fromL RELACAAA.DBM ;
Add remarks to a Command file.	REM <enter any text here>	REM This installation command file REM installs the MEMBERS form into REM the current application.

Sample Installation Command File

A small Installation Command file is shown below:

```
Install EMPLOYEES from:  EMPLCAAA.FRM  table:  EMPLCAAA.TDF ;
Install SALARY HISTORY from:  SALACAAA.FRM ;
Replace Relationships from:  RELACAAA.DBM ;
```

This Installation Command file tells DataEase to:

- Install the EMPLOYEES form and table into the current application.
- Install the SALARY HISTORY form into the current application. (no table).
- Replace the current application's Relationships with a new relationships file, named RELABAAA.DBM.

How to Install a Single Document

1. Choose **Application>>Utilities>>Install**
2. Choose Single Document
3. Click on the Documents button. DataEase displays the Document dialog, which lets you search for the document you want to install. Alternatively, DataEase lets you manually enter the filename and pathname in the Document File Name (.FRM) text box.
4. In the Document dialog, select the document you want to install and click OK. DataEase enters the document name in the Document File Name (.FRM) text box. If the form defines the table, DataEase enters the table name in the table Definition File Name (.TDF) text box.
5. To include data files with the form and table, select Include Data for table. DataEase automatically displays the data filename in the Data File Name (.DBM) text box.
6. To store the system messages in a file, check Log Messages to File.
7. Click OK. DataEase installs the selected document and displays the Install Finished dialog. Click Yes to view the Message Log File, or click No to close the dialog.

How to Install Documents Using an Installation Command File

1. Open an ASCII text editor, such as Windows Notepad.
2. Enter the commands you require for an installation. (Refer to the **Installation Command File Table**).
3. Save the file in the ASCII text editor with the filename extension .DIW.
4. To execute the file in DataEase, choose **Application>>Utilities>>Install**. DataEase displays the Install dialog.
5. Choose **Install From Command File**. DataEase displays the Command File Name (DIW) text box and the DIW Browse button.
6. Click on the DIW Browse button. DataEase displays the Script File dialog, which lets you search for and select the Installation Command file you want to install.
7. Select the Installation Command filename and click OK. Alternatively, DataEase lets you enter the command filename and pathname manually in the Command File Name (DIW) text box.
8. To store system messages in a file, select Log Messages to File.
9. Click OK. DataEase installs and/or updates the documents specified in the Installation Command file.

Note: As you create the Installation Command file, be sure to insert a space after each colon and before each semicolon.

Locking an Application

When you choose **Application>>Utilities>>Lock**, DataEase prevents other users from opening the application. We recommend that you use this option when you perform application administration functions, and batch report processing.

When you choose this option, DataEase displays one of two messages.

Application Locked

or

Not Allowed - other users active

If DataEase displays the second message, you must wait for all other users to exit the application before DataEase can lock it.

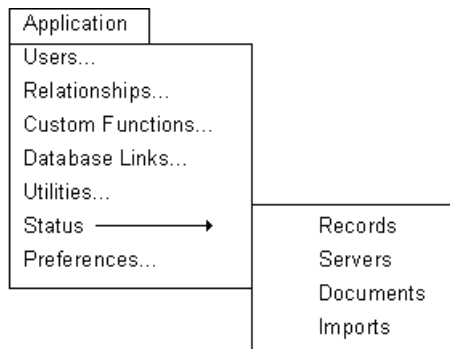
While the application is locked, DataEase displays a check mark next to the lock option name on the Utilities cascade menu. To unlock the application, choose

Application>>Utilities>>Lock. DataEase displays the message:

Application Unlocked.

Viewing Application Status Reports

When you choose **Application>>Status**, DataEase displays the Status cascade menu, which lets you view the status of the records, servers, documents, and imports in the current application.



Status Cascade Menu Options

Records displays a report detailing the status of the records in the current application.

Servers displays a report detailing the status of the servers for the current application.

Documents displays a report detailing the status of the documents in the current application.

Imports displays a report detailing the status of the imports in the current application

Viewing a Record Status Report

When you choose **Application>>Status>>Records**, DataEase displays a report that gives you information on the records for each table in the application. The records are grouped by table name and DataEase lists all files associated with the table, such as data (.DBM) files, table definition (.TDF) files, and index files. For each file, DataEase displays the number of records, the number of deleted records, the file size, and the DOS filename. The Record Status report lists the records for each table in the application, including System forms, such as Relationships, Screen Styles, and Users.

When you first run the Record Status Report, DataEase displays all the files for each table in the application. You can use the buttons at the top of the report to view only the system files, table definition files, data files, or indices. These buttons are inclusive, e.g. if you click System, DataEase displays the system files, and then if you click TDF, DataEase displays the system files and the TDF files.

System

IDF

Data

Index

All

Sort By...

Print...

Prev. Page

Next Page

Exit

Table Name: \$DeStat_DocInfo\$

Description	# of Records	# Deleted	File Size	DOS File
Data File	24	0	2,088	DESTCAAC.DBM
Table Definition File	0	0	295	DESTCAAC.TDF

Table Name: \$DeStat_ImplInfo\$

Description	# of Records	# Deleted	File Size	DOS File
Data File	0	0	0	DESTCAAD.DBM
Table Definition File	0	0	197	DESTCAAD.TDF

Table Name: \$DeStat_ServInfo\$

Description	# of Records	# Deleted	File Size	DOS File
Data File	0	0	0	DESTCAAB.DBM
Table Definition File	0	0	328	DESTCAAB.TDF

Table Name: ACTIVITIES

Description	# of Records	# Deleted	File Size	DOS File
Data File	31	0	11,191	ACTICAAA.DBM
Index File	0	0	2,048	ACTICAAA.ID1
ACTIVITIES {Defines}	0	0	13,482	ACTICAAAC.FRM
ACTIVITY SURVEY {Uses}	0	0	10,537	ACTICAAAF.FRM

You can view a Record Status report for a table created in the character-based version of DataEase (5.x or higher) using DataEase. When you view the Record Status Report, DataEase displays all files associated with the table, including compound index files (.MO1) and character-based form views (.CFM). DataEase displays "CUI Form View" as the name for each character-based .CFM file, and tells you whether the form defines or uses a table.

You can create a new DataEase document over the character-based .TDF file. When you run the Record Status report again, DataEase displays the name of the DataEase document created over the character-based .TDF file.

Viewing a Server Status Report

When you choose **Application>>Status>>Servers**, DataEase displays a report that gives you information on the status of the servers for your application. The servers are grouped by Engine Type (Native, Oracle, etc). DataEase lists information about each server, such as the Server Name, Database name, Table Name, and Table Owner.

Viewing a Document Status Report

When you choose **Application>>Status>>Documents**, DataEase displays a report with information on the status of documents in your application. The documents are grouped by type (form, menu, procedure and report). The Documents report displays information about each document, such as whether the document defines or uses a table, the document name, table name, file size and DOS filename. For menus and procedures, DataEase displays N/A as the table name, since menus and procedures do not define tables.

Viewing an Import Status Report

When you choose **Application>>Status>>Imports** DataEase displays a report with information on the status of the import (.DBI) files in your application, such as the import name, file size, and DOS filename. DataEase displays all .DBI files found in the current application directory.

Note: You can choose **Query>>>QBM New Report** to create a custom report layout to display the information in an Applications Status report. However, the information in the custom report is not updated automatically when you run the Application Status report again. To update the information in the custom report layout, run the Application Status report and run the custom report again.

Customizing the Application Status Report

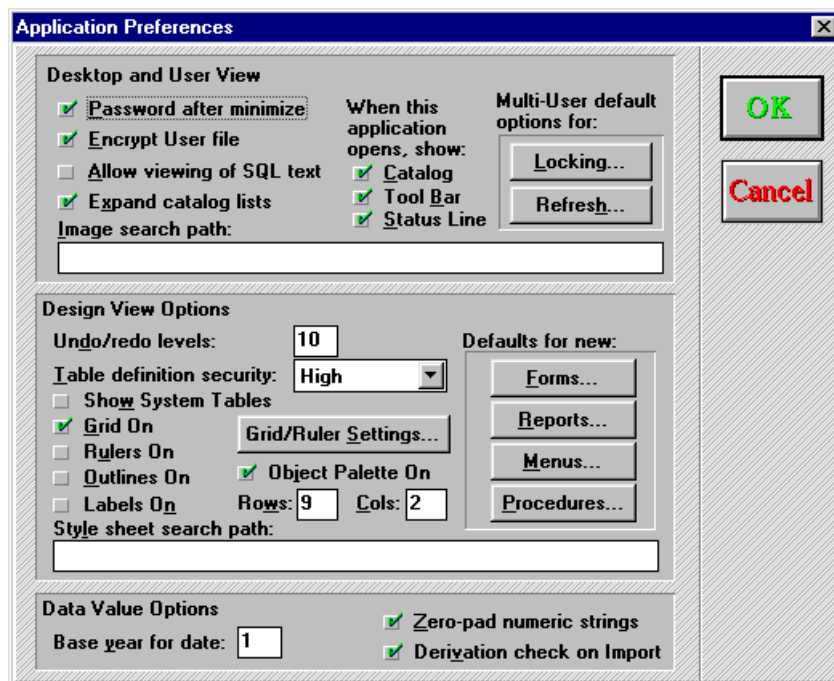
The buttons on each Application Status report vary depending on the type of report you are viewing. The table below lists and describes each button option.

Application Status Report Buttons

Button	Function	Shortcut Key	Status Report
System	Displays information about System Files, such as Configuration and Custom Functions.	Ctrl + Shift + Y	Records
TDF	Lets you view table (.TDF) definition Files.	Ctrl + Shift + T	Records
Data	Lets you view data (.DBM) files.	Ctrl + Shift + D	Records
Index	Lets you view index files.	Ctrl + Shift + X	Records
All	Lets you view all records or all Documents in the current application.	Ctrl + Shift + A	Records & Documents
Forms	Lets you view application forms.	Ctrl + Shift + F	Documents
Reports	Lets you view application reports	Ctrl + Shift + R	Documents
Procedures	Lets you view application procedures	Ctrl + Shift + P	Documents
Menus	Lets you view application menus.	Ctrl + Shift + M	Documents
Sort By	Lets you sort records in the Application Status Report.	Ctrl + Shift + S	All
Print	Displays the Print dialog, which lets You print the application status report.	Ctrl + Shift + I	All
Prev Page	Lets you view the previous page of the Application Status report.	Ctrl + Shift + V	All
Next Page	Lets you view the next page of the Application Status report.	Ctrl + Shift + N	All
Exit	Closes the Application Status report.	Ctrl + Shift + E	All

Setting Preferences for an Application

When you choose **Application>>Preferences** DataEase displays the Application Preferences dialog, which lets you set application-level preferences.



Application Preferences Dialog Options

The Application Preferences dialog is divided into three sections: Desktop and User View Options, Designer View Options, and Data Value Options.

Desktop and User View Options

Desktop and User View options let you set preferences that apply to when you open an application or view a document in User View. The settings you choose go into effect during the next session in which you open the application.

Password after minimize tells DataEase to require a Password to open the application when it is minimized. The default is off (do not require a Password after minimize).

When this option is on, DataEase displays the dialog shown below when you try to Maximize or Restore the application from the DataEase icon. To restore the application, enter your Password.



Encrypt User File automatically encrypts each user's Name and Password as it is entered in the Users form. Encryption scrambles the data so that it can be read only by DataEase. The default is on.

Allow Viewing of SQL text lets a user **View>>Generated SQL**. With the Generated SQL option active, DataEase automatically displays the generated SQL statements that correspond to the current operation (e.g. inserting or updating a record). By default DataEase does not display generated SQL.

Expand catalog list displays an expanded list of all documents in the Application Catalog when you open an application. The default is to expand catalog lists.

Show catalog displays the Application Catalog when you open the application. The default is on.

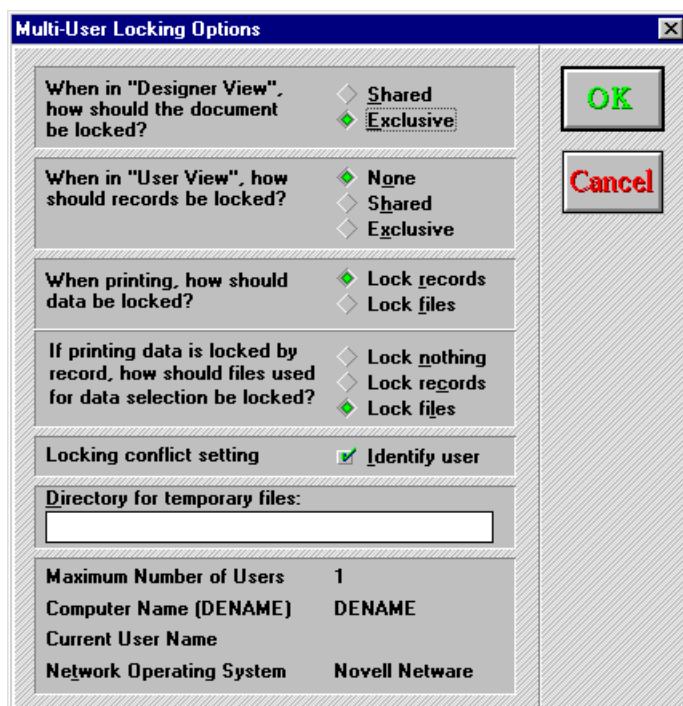
Show Tool Bar displays the Toolbar when you open the application. The default is on.

Turning off the Toolbar does not prevent you from displaying it by choosing **View>>Toolbar**.

Show Status Line displays the Status Bar when you open the application. The default is on.

Turning off the Status Bar does not prevent you from displaying it by choosing **View>>Status Bar**.

Multi-User default options for Locking opens the Multi-User Locking Options dialog, shown below.



The dialog box is titled "Multi-User Locking Options" and contains several settings for document and record locking. It includes radio buttons for selecting locking methods and checkboxes for additional options. On the right side, there are "OK" and "Cancel" buttons.

When in "Designer View", how should the document be locked?	<input type="radio"/> Shared <input checked="" type="radio"/> Exclusive
When in "User View", how should records be locked?	<input checked="" type="radio"/> None <input type="radio"/> Shared <input type="radio"/> Exclusive
When printing, how should data be locked?	<input checked="" type="radio"/> Lock records <input type="radio"/> Lock files
If printing data is locked by record, how should files used for data selection be locked?	<input type="radio"/> Lock nothing <input type="radio"/> Lock records <input checked="" type="radio"/> Lock files
Locking conflict setting	<input checked="" type="checkbox"/> Identify user
Directory for temporary files:	<input type="text"/>
Maximum Number of Users	1
Computer Name (DENAME)	DENAME
Current User Name	
Network Operating System	Novell Netware

When in "Designer View" how should the document be locked? Lets you specify the locking rules that govern conflicts when more than one user requests a document. The rules preserve the integrity of data by preventing more than one user from simultaneously modifying the same resource. Choose:

Shared when two or more users can view the data at the same time. If one user is entering, modifying, or deleting information in the document, no other user can access it. When one user is viewing the document, another user cannot enter, modify, or delete information in it.

Exclusive when only one user can access the document at one time. Exclusive is the default.

When in "User View" how should records be locked? Lets you specify the locking rules for a document, when in User View. Choose:

None when all users have full access to the document. The default is none.

Shared to let multiple users view records simultaneously.

Exclusive to let only one user access a record at one time.

When printing, how should the data be locked? Tells DataEase whether to lock the records or the files when printing a document. Choose:

Lock records if you prefer to lock records one by one as they are processed. Other users can not modify or delete these records, but they can view them. The default is lock records.

Lock Files to lock **all** records that will be used during processing.

If Printing data is locked by record, how should files used for data selection be locked?

Tells DataEase how to lock the records during printing, if Lock Records is selected. Choose:

Lock Nothing to allow other users to view, modify, or delete records selected for printing.

Lock Records to lock any records that have been selected for processing. Other users cannot modify or delete the selected records. They can view the records, if the selected records will only be listed by the procedure (rather than modified or deleted). Other users can view, modify, delete, or add records in the same form(s) that have not been selected. Once processing begins, the locking rule applies. This is the default option.

Lock Files to lock the form(s) from which records are being selected. Other users cannot add, modify, or delete records in the form. They can view records in the form if the selected records will only be listed by the procedure. The forms remain locked until printing is completed.

Locking conflict setting tells DataEase to identify the person who is using the document, when Identify user is checked. When it is checked and a user requests a document that is in use, DataEase displays a message that the document "is currently in use" and displays the name of the user. The default is on.

Directory for temporary files lets you specify the pathname of the directory where you want to store the temporary files DataEase creates during some operations (such as sorting records or buffering report outputs).

The following information displayed in the bottom portion of the Multi-User Locking Options dialog is generated by DataEase.

- **Maximum number of Users** is the number of users that have access to this DataEase application.
- **Computer Name** specifies the computer name entered on the network.
- **Computer User** specifies the user name entered on the Application Security form.
- **Network Operating System** specifies the type of operating system used by DataEase.

Multi-User default options for Refresh opens the Set Refresh Time dialog, which lets you enter the refresh time in seconds.



Image Search path tells DataEase in which directories to search for image files. The pathname can be up to 255 characters. You do not have to include the application directory in the image search path. When you include an image in a record or document layout, DataEase automatically searches this directory.

Use the same syntax you use in the AUTOEXEC.BAT file path command for your system. For example, the Image search path for the Club ParaDEASE application is
C:\BITMAP\CLUB;C:\IMAGES\SPORTS

When you enter a filename for a data image, DataEase searches for the file in the directories listed in the Image search path. If the file exists in one of these directories, DataEase replaces the filename with the image. Otherwise, DataEase displays an Image Loading Error message followed by the Image Definition dialog. You can use the Image Definition dialog to choose the image you want to display in the Image field.

If you receive the Image Loading Error message, check to ascertain that the directories that store the images you want to display are listed in the Images search path.

Designer View Options

Designer View options let you set preferences for documents that you open in Designer (rather than User) View.

Undo/redo levels specifies the number of successive actions that can be reversed with **Edit>>Undo** and **Edit>>Redo**. You can specify any number from 1 to 99. The default is 10.

Note: Each level of Undo/redo uses memory. To conserve memory, set the Undo/Redo setting to a low value.

Table definition security specifies the minimum security level required to modify a database table (i.e. modify a column definition, or add/delete a column). The default is High.

You can override the options listed below by choosing the appropriate View menu options in Designer View.

Show System Tables tells DataEase to show a list of the System tables and their associated relationships, users, and Custom-Defined Functions. The default is off.

Grid On displays the alignment grid. The default is on.

Rulers On displays the Rulers along the top and left edges of the active window.

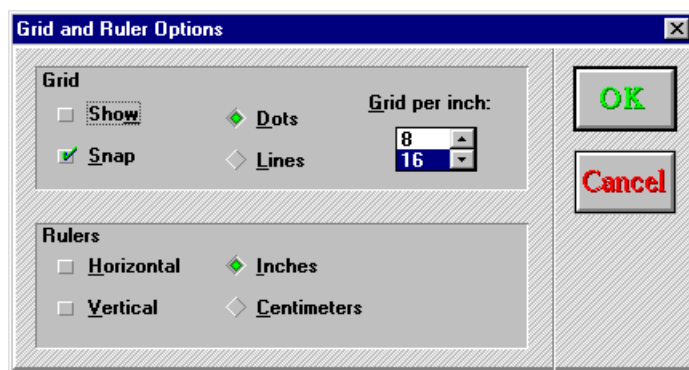
Outlines On displays the outlines of Form, Record, and Field objects that have no discernible borders. The default is on.

Labels On displays the labels at the top of each Form, Subform, or Record object. The default is on.

Object Palette On displays the Object palette in the active window. The default is on.

Rows and Columns lets you specify how you prefer to arrange the buttons in the Object Palette. The numbers in the two boxes, when multiplied, must equal at least 18 for all 18 object icons to be visible. You can also rearrange the Object palette using your mouse.

Grid/Ruler settings opens the Grid and Ruler Options dialog, which lets you choose to display Grid lines, specify that objects snap to the Grid, specify the number of Grid lines per inch, and turn on the Ruler and specify its unit of measurement (inches or centimeters).



Style Sheet Search Path tells DataEase in which directories to search for Style Sheet files. The pathname can be up to 255 characters.

When you open a document, DataEase automatically searches for the Style Sheet file in the application directory, in the DataEase STYLES subdirectory, and then in the directories listed in the Style Sheet search path.

If the file exists in one of these directories, DataEase loads the Style Sheet. Otherwise, DataEase displays the Error Loading Style Sheet alert message. If you receive this message, check the directory that stores the Style Sheet is listed in the Style Sheet search path.

Defaults for new opens the Application Preferences: Document Properties form. Click the Form, Report, menu or Procedure button to open a Document Properties form used to set the default properties for all application documents of this type.

The Application Preferences: Form Document Properties form is shown below. The options on this form are the same as those on the Document Properties form displayed when you choose **Document>>Properties** in Designer View.

You can also choose **Application>>Preferences** in User View. To prevent a user from changing document formats specified in the Application Preferences dialog, choose **Document>>Custom Menu** and remove the Preferences option in the Application Menu from the user's startup document menu, the startup document, and all other document menus connected with the application.

Data Value Options

Data Value Options let you set preferences for field values.

Base year for date tells DataEase the base year for the internal calendar DataEase uses to manipulate data values.

DataEase can return dates up to 100 years after the Base Year. The default Base Year is 1, which means that DataEase can express dates ranging from January 1 1901, to December 31st, 2000. By changing the Base Year, you can set DataEase to return dates well into the 21st Century. (Remember to check the Base Year setting in your application **before** year 2001).

Zero-pad numeric strings lets you insert zeros to the left of the values in Numeric String fields. The default is to insert zeros.

Note: turning off zero padding is helpful when working with data from programs that leave numeric strings left-justified with trailing spaces.

Derivation check on Import lets you perform a derivation check when you transfer records between database tables using **File>>Save As** with Copy data chosen. The default is to perform the derivation check.

With this option on, DataEase enables range checking and rederives all the field values in the destination form that are defined with Derivation Formulas. However, turning off derivation checking improves performance during an import.

Note: If a field value used in the Derivation Formula of another field is overwritten by an imported value, DataEase automatically rederives the derived field's value. Sequenced ID fields are always rederived for the records into which data is imported.

How to Encrypt/Decrypt a User's record

1. Choose **Application>>Preferences**. DataEase displays the Application Preferences dialog. Deselect Encrypt User file and click OK to close the dialog.
2. Choose **Application>>Users**. DataEase displays the Users form.
3. Display the first record and choose **save**. DataEase does not encrypt the modified record because the encryption feature has been turned off.
4. Repeat step 3 for each record in the file. Click Done to close the Users form.
5. To re-encrypt the file, choose Encrypt User file and follow steps 2 to 4 above.

Chapter 9 : The Window Menu

The Window menu options are used to arrange document windows and icons on your screen, close all open windows in one step, and change the active window.

The term **document window** refers to any window that contains a DataEase document, such as a form or report.

Each menu option is summarized in the table below.

Summary of Window Menu Options

Menu Option	Keyboard Equivalent	Menu Option is Used to...
Tile Across	Alt + W, A Shift + F4	Arrange document windows one next to the other.
Tile Down	Alt + W, D	Arrange document windows one above the other.
Cascade	Alt + W, C Shift + F5	Arrange document windows one in front of another with all the Title Bars visible like The tabs on a group of file folders.
Arrange Icons	Alt + W, I	Align minimized windows in a row on the Bottom of the DataEase window.
Close All	Alt + W, L	Close all windows (except the Application Catalog) without exiting DataEase.
1...9 Form	Alt + W, (1...9)	Display the selected table or document in the active window.

Chapter 10 : The Help Menu

The Help menu options are used to access the online Help system, activate context-sensitive Help, and get information on how to use the online Help system.

Each menu option is summarized in the table below.

Summary of Help Menu Options

Menu Option	Keyboard Equivalent	Menu Option is used to.....
Contents	Alt + H, C	Display the DataEase Help File. The Help file contains both a Drill-Down search button, and a Contents Navigation Window from which you can select a desired topic.
Search	Alt + H, S	Enters the DataEase Help System. Select the Search button and enter a text string to locate All instances of that string.
Desktop	Alt + H, D	Display accelerator keys for Menu commands.
Menus	Alt + H, M	Display help for each menu option.
Toolbar	Alt + H, T	Display help for each Toolbar icon.
How To	Alt + H, H	Display an alphabetical list of "How to" topics.
Glossary	Alt + H, G	Display a pop-up definition of DataEase terms.
About DataEase	Alt + H, A	Display the version and copyright information.

Appendix A : Foreign Databases

Designing Applications in a Client-Server Environment

This appendix provides an overview of using DataEase in a Client-server environment. Detailed information about each topic mentioned in this appendix can be found in the various online manuals.

Built-in PC Database Engine Support

DataEase provides built-in support for SQL connectivity via the Microsoft Open Database Connectivity (ODBC) standard.

To use ODBC to connect to other engines, it is necessary to acquire the appropriate ODBC driver from a third party and locally configure your ODBC data sources. See your third party ODBC documentation for more details.

Using Foreign Data Sources in Designer View

DataEase makes it easy to create or access data stored in SQL tables and other popular data formats such as Oracle, IBM's DB2 family of RDBMS, AS/400, Microsoft SQL Server, Sybase, dBASE, and Access.

In Designer View you can create DataEase documents that define new tables. You can also use existing foreign database tables on your own PC (called a **client** or **front-end** machine) while the database engine (called the **server** or **back-end** machine) stores and processes the data.

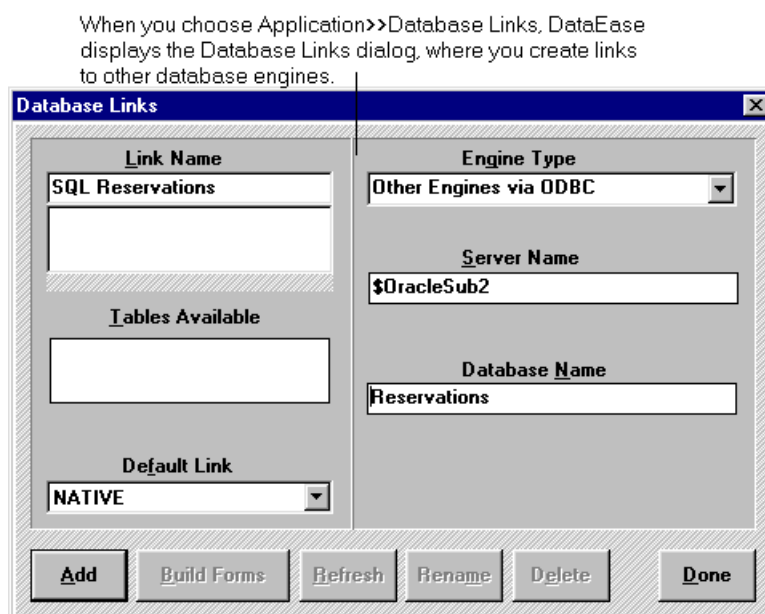
The database tables(s) and application references may reside on multiple database servers, even servers of different database engine types. DataEase transparently accesses information in various tables on multiple servers, so you don't need to know the actual location of the tables.

Using DataEase with Foreign Database Engines

DataEase is shipped with built-in support for ODBC (Open Database Connectivity), a special engine API that lets a DataEase application transparently access many types of SQL engine. However, you do need to have the appropriate SQL engine ODBC driver. These drivers are often bundled with the engine itself.

Linking to a Foreign Database

Once an ODBC driver is installed, DataEase lets you link your application to a foreign database located on any server to which your computer is physically connected. Once the link is established, you can create and modify tables in the foreign database, and view and enter data into those tables. (You require appropriate access rights to the SQL engine before you can perform these tasks).



When you create a database link, DataEase will try to use your DataEase User name to log on to the server. If your current User Name and/or Password are **not** valid for the specified server or database, DataEase prompts you to enter a different User name and Password.

When you create a database link, DataEase will inquire of the server the list of SQL tables to which you have access. This list will be shown in the Tables Available text box.

Refreshing a Database Link

When you refresh a database link, DataEase compares the original database information with the current state of the database. If any tables have been added or deleted, the list of tables is updated to reflect the new information. At the same time, DataEase synchronizes each DataEase table with the SQL table definition on the server.

If a column has been added to a table, DataEase adds the column to the list of columns stored in the corresponding table definition file. If a column has been deleted, DataEase deletes it from the table definition file, but its corresponding Field object remains on the form and must be deleted manually. After the database link is refreshed, you can create forms using any new tables, and create fields for any new columns.

Adding an ODBC Database Link

When you add an ODBC (Open Database Connectivity) database link to link dBASE or Paradox files to your application, the dialog that DataEase displays is slightly different from the standard Database Links dialog. Since the data is stored in an operating system directory rather than an SQL server, the options for the server Name and Database name are replaced with text boxes where you select the drive and directory.

The ODBC Database Links Dialog also provides a Single User check box option. If you are running DataEase in a single-user environment, turn this option on to enhance performance.

The table below summarizes the additional files DataEase installs to allow access to dBASE and Paradox data. When you run the setup program, DataEase stores some of these files in the DataEase program directory, and others in the Windows directory. Files should remain in the directory they were placed.

ODBC Driver-Related Files

File Name	Purpose
SIMBA.DLL	Driver that reads and writes Paradox and dBASE data.
DBSTEST.DLL	Driver that translates ODBC database calls to dBASE calls.
PDXISAM.DLL	Driver that translates ODBC database calls to Paradox calls.
ODBCISAM.DLL	Driver that manages ISAM data sources defined in the ODBC.INI file.
ODBC.DLL	Driver that contains the call interface routines for ODBC.
ODBCISAM.INI	Setup file that stores information regarding ISAM engines and directs ODBC database calls to the proper engine interface (e.g., ISAM, relational).
ODBC.INI	Setup file that stores a list of all ODBC data source connections (relational and ISAM).
DEODBC.DLL	DataEase SQL Connect driver for ODBC.

Note: The ODBC.INI file contains default settings for a number of special ODBC features, such as a list of all the data source connections that exist. When you add a database link to dBASE or Paradox using the ODBC driver, DataEase automatically modifies the ODBC.INI file according to the selections you make in the DataEase Links dialog.

Restrictions on Using ODBC Database Tables

DataEase supports all documented record entry operations in a form (or report) that uses a dBASE or Paradox table, including viewing, querying, entering, modifying, and deleting records - exactly like a Native DataEase table.

ODBC Data

User View	Designer View
View, Enter, Modify and Delete records	Create a form or report over an existing table.
Use QBF and QBM	Use QBM (Tables and indexes must be created in dBASE or Paradox)

DataEase does not support the creation of dBASE or Paradox tables or indexes. You must use dBASE or Paradox to create or delete tables and indexes.

Note: When you create a form over an existing dBASE or Paradox table, DataEase automatically creates a Duplicate (non unique) index on each field that corresponds to an indexed column in the foreign table. To enhance query performance, you can manually change the index characteristics for individual fields to Unique - **but** this should only be done if they are also assigned as Unique in the foreign table.

dBASE Datatype Conversion

The table below summarizes how dBASE datatypes are converted into DataEase Field Types when you create a form over an existing dBASE table.

dBASE/DataEase Datatype Conversion

dBASE Datatype	DataEase Field Type
Character	Text
Numeric	Floating Point
Float	Floating Point
Date	Date
Logical	Text
Memo	Not supported

Note: To convert a dBASE datatype to integer or Fixed Point, first choose **Document>>Properties** and specify Defines table. You can then modify the DataEase Field Types.

User Privileges and Permissions

To create a form that owns or uses an SQL table, you must have the necessary access rights on the server. The two levels of server access rights - **privileges** and **permissions** - are summarized in the table below.

User Privileges and Permissions

Identifier	Used to....	Types
User Privileges	Control table definition functions. Usually reserved for the system administrator.	CREATE TABLE DROP TABLE ALTER TABLE
User Permissions	Control record entry functions on SQL tables. Can only be granted by the system administrator or by the table owner. Generally granted to all users.	SELECT INSERT UPDATE DELETE

When you define a form and SQL table, you automatically become the table owner and, therefore, can assign permissions to use the table. User permissions and privileges can be granted or revoked through an SQL program or utility outside of DataEase, or through an EXEC SQL statement written in the DataEase Query Language. DataEase security levels, however, can only be specified from within DataEase. The SQL system administrator can revoke user permissions on the server without changing a user's DataEase security level.

SQL Engine Functions

Some SQL engines support the use of **rules** and **triggers**. A **rule** is a constant placed on a column to ensure the integrity of data entered into the column. A **trigger** is a special form of stored procedure that goes into effect automatically when a user enters, modifies, or deletes data in a specific table.

If you don't have all the user permissions required to perform all the actions specified in an SQL-defined rule or trigger, DataEase displays a server error message when you try to enter, modify, or delete a record in a specific form. Rules and triggers are examples of how DataEase cooperatively functions with SQL engines to transparently enforce data integrity.

Automatic Granting of User Permissions

When you define a form and SQL table, DataEase searches through the Users form (a DataEase system form) and creates a list of each user and **group** allowed access to the application. A group is a named set of users in a particular SQL database. Each user and group is then granted permissions on the newly created SQL table.

The Permissions granted to each user or group depend on the security levels for viewing, entering, modifying, or deleting records in the form (specified in the Document Security dialog) and the DataEase security level assigned to the user or group on the Users form.

If you want to modify the DataEase-assigned user permissions, you must explicitly grant or revoke permissions through a DQL procedure (using the EXEC SQL command) or directly through the server's SQL language interface (e.g. SAF, in Microsoft SQL Server).

Creating Forms and Tables

DataEase allows you to define forms and reports over tables stored in one or more of the foreign databases. As long as you are a valid user on the foreign server and database, and have the appropriate permissions, you can use DataEase to create or access a foreign table in that database.

Owning versus Using a Table

If the form definition automatically creates a corresponding foreign table, the form is said to **own** the resulting table. A DataEase form can only own a foreign table if the table did not exist prior to the time the form was created. When you define a form and foreign table, DataEase creates a foreign table in which columns match the fields in the DataEase form.

If the form definition references a foreign table created with DataEase or another product, the form is said to **use** the preexisting table. A DataEase form may use a foreign table that existed prior to the time the form was defined. When you define a form on an existing table, DataEase creates fields with characteristics that match the characteristics of the foreign table.

If a form owns or uses a foreign table, each non-virtual field in the form corresponds to a column in the table and each record corresponds to a row in the table.

Note: References to forms that use tables include forms you define on existing tables, and forms you define on existing views.

DataEase lets you define a form on an SQL table or view. Although tables and views are created separately using SQL, DataEase treats tables and views in the same way. Whenever DataEase displays a list of tables, the list includes both tables and views.

DataEase Form Definition Files

When you create a form in DataEase, DataEase creates three files: form definition, table definition, and data files.

DataEase Form Definition Files

Type of File	Purpose	Filename Extension
Form Definition	Controls the appearance of the form.	.FRM
Table Definition	Defines the field attributes, which are directly related to the SQL Column attributes.	.TDF
Data	Stores the data entered and saved during record entry. In the case of remote tables, the data is actually stored on the server.	.DBM

Where DataEase Files are Stored

When you define and save a form, you can tell DataEase to store the data for the form in:

- A Native table that it creates in the application directory.
- A new foreign table.
- A preexisting foreign table.

File Storage Location

Define a Form...	DataEase for Windows stores these files in the...	
	Application Directory as a..	Foreign Database as a..
..and Native Table	.TDF (table definition file) .FRM (form definition file) .DBM (data file)	N/A
on an Existing Native Table	.FRM	N/A
..and Foreign Table	.TDF .FRM	TDF in the SQL file format Data file in the SQL file format.
on an existing Foreign Table	.FRM	Data file in the SQL file format.

The form definition and the data in a form can be stored on either the Native DataEase engine or on a foreign database engine. DataEase divides forms into three types based on how the data is stored, A form can define or use:

- An SQL table stored on an SQL server.
- A table stored in a foreign PC database format (e.g. dBASE).
- A Native table, which is stored on a local or file server drive and uses the database engine built into DataEase. A Native Database form does **not** access a foreign database.

All DataEase System forms are native DataEase forms. User-defined forms may be either Native DataEase forms or forms that define or use a foreign table.

Defining Fields

When you define a form and table, you must create the fields on the form individually, one after another until the form definition is completed. When you define a form on an existing table, you have a choice of how to create fields. You can convert all the columns into fields automatically by choosing any layout option other than Custom. Alternatively you can select them one at a time and control placement of your fields by choosing a Custom layout. Choose this option if you want to display only a limited number of the columns on your form.

The list below summarizes important information about defining fields in a foreign database. See your DataEase Engine Information Guide (obtained when you purchase a DataEase SQL Connect module) for information relating to specific SQL engines.

Defining Field Characteristics

Field Characteristics	Defining a Form and Foreign table	Defining a Form on an Existing Foreign Table
Field/Column Name	DataEase automatically creates the column name using the field name. The column name is not displayed and cannot be edited through DataEase. If the field name contains characters not supported by the server, DataEase modifies the name appropriately (e.g. most servers do not support embedded spaces, so a field called LAST NAME creates a column called LAST_NAME).	DataEase creates a field name using the foreign column name. The field name can be modified.
Field Type	DataEase converts the field type you select to an equivalent Foreign column datatype.	DataEase converts the foreign column Datatype into an equivalent DataEase Field type.
Choice List	Since Choice List values are stored as numbers, DataEase creates a column with an integer datatype. To use the column as a Choice List field, change the field type to Choice List and reenter the choice values in the same order as originally entered. If other front ends will access the foreign table, they will only see the integer values.	DataEase also lets you create a Choice List field on a Text field. Change the field type to Choice List and enter the choices in the list box. Because the field is defined on a Text column, DataEase stores the choices as Text values.
Field Length	DataEase automatically creates a foreign column the same length as the field. See your Database Engine Information Guide for column length restrictions for your specific engine type.	The field length is automatically set to the Foreign column length. Although you can alter the field length, you must use caution. If you increase the field length, the database engine either truncates the value (resulting in invalid data) or displays an error message. If you decrease the field length, DataEase displays only part of the column value, resulting in error messages when you modify records.
Required	DataEase creates a foreign column with a NOT NULL attribute.	DataEase automatically creates a Required attribute for each NOT NULL column. You cannot remove the NOT NULL attribute of a field created on a NOT NULL column. All NOT NULL columns must be included on the DataEase form if it is to be used for data entry.

Field Characteristics	Defining a Form and Foreign table	Defining a Form on an Existing Foreign Table
Indexed	DataEase creates a separate index in the foreign table.	DataEase automatically creates an indexed field attribute for each indexed foreign column.
Unique	We strongly recommend that you create at least one Unique field on the form, to prevent the entry of duplicate records.	Any fields you create from columns on the server that are part of a unique index are automatically defined as unique fields. If you plan to enter records into the form, you must make sure you create a field on the form for every SQL column used as part of a unique index on the SQL server. If you do not add all the unique columns to the form, you will not be able to enter or save records in that form.
Virtual	Any field defined as Virtual on the form is not converted into a column in the foreign table.	Any field that you define on the form that does not have a corresponding foreign column must be defined as virtual.
Derivation Formula	Any Derivation Formula you create as part of a field definition is not automatically duplicated on the server. You may want to manually define a foreign engine equivalent of the Derivation Formula to make the application consistent across front-end products. (e.g. by using Rules).	_____
Validation Formula	Any Validation Formula you create as part of a field definition is not automatically duplicated on the server. You may want to manually define a foreign engine equivalent of the Validation Formula to make the application consistent across front-end products. (e.g. by using Rules).	_____

Modifying and Deleting Forms

Modifying a Form

If you modify a form that **owns** a foreign table, the table is automatically changed to match the modified form

If you modify a form that **uses** a foreign table, just the form definition is modified. The corresponding table is not affected.

Deleting a Form

When you delete a DataEase form, the files that DataEase deletes depend on how the form was originally created. The table below summarizes the files DataEase deletes when you delete a form.

Deleting a DataEase for Windows Form

If you Delete a Form that...	DataEase Deletes the...
Defines a Native Table	Form Definition file. (.FRM filename extension). Table Definition file. (.TDF filename extension). Data file (.DBM filename extension).
Uses a Native Table	Form Definition file. (.FRM)
Owns a Foreign Table	Form Definition file (.FRM). SQL Table Definition file (.TDF)..only if you are the Table owner or SQL Administrator. Data file (only if you are the Table owner or SQL Administrator).
Uses a Foreign Table	Form Definition file. (.FRM).

Note: If you delete a form that owns a foreign table, DataEase always displays the dialog that asks you if you **really** want to delete the table. However, you can only delete the table if you are the table owner or SQL system administrator.

Appendix B : Using CDF's with DATAEASE

A **Custom-Defined Function** (CDF) is a program that you write outside of DataEase, using a language such as C, Assembler, or another supported programming language. A CDF is intended to expand or modify the action performed by one or more of the 58 predefined DataEase functions.

This appendix contains information on creating and preparing CDF's for use with DataEase. The information is organized into the following sections.

- **Writing a CDF**
- **Creating a Windows Dynamic Link Library File**
- **Registering a CDF**
- **Using a CDF with DataEase**
- **Sample CDF**

The first two sections describe how to create a CDF and include it in a file DataEase can use. The second two sections contain technical information that supplements information relating to CDF's in the Application Menu section of this guide. The final section - Sample CDF - contains the code listing of an example CDF. You may wish to refer to it while reading this appendix.

Using a Windows Dynamic Link Library

In order to use a CDF with DataEase, you must create a Windows Dynamic Link Library (DLL) file in which to store the function. The DLL provides additional code and resources that DataEase can access.

Any DataEase application can use the functions contained in the DLL. You can link any number of DLLs and create a link to any function in the Library by registering the function in the Custom Functions form.

Restrictions on Creating CDFs

The restrictions for creating CDFs for use with DataEase are summarized below:

- The program must include an initialization routine, called LibMain, to perform startup processing for the DLL when it is first loaded.
- The program must include a termination routine called WEP (Windows Exit Procedure), to perform cleanup for the DLL before it is unloaded.
- The CDF DLL file must be in the PATH command of your system's autoexec.bat file.
- You must create a Module Definition file that exports the function.

Writing a CDF

You can write a CDF in any programming language that supports:

- Long code and far data pointers.
- PASCAL calling convention.

Note: DataEase requires that a CDF library remain resident in memory. For this reason, you should never use an abort or exit call (or any other function that terminates the library program) within your CDF DLL file.

Specifying the Prototype Definition

For each CDF you must create a prototype definition, which specifies the types of values the function passes, before you declare the function. For the rounding sample at the end of this appendix, the prototype definition is:

```
11    double FAR PASCAL Rounding (double,double)
```

This structure sets up the function declaration for the CDF, which is:

```
43    double FAR PASCAL Rounding (double FloatPointValue, double FractionaaConstant)
44    {...
54    }
```

Including an Initialization Function

Each Windows DLL must include an **Initialization function**. Windows calls the initialization function to perform start-up processing for the DLL when the library is first linked. The LibMain function appears in lines 15 through 31 of the sample RNDWIN source file.

Including a Termination Function

A Windows DLL must also include a termination function. Windows uses the termination function to perform cleanup of the DLL before it is unloaded. The WEP function appears in lines 92 through 104 of the sample RNDWIN source file.

Creating a Module Definition File for the Windows DLL File

When you create a Windows DLL file containing CDFs for use with DataEase, you must also create a Module Definition File (DEF extension) to indicate where each function begins within the library file. The Module Definition File for the RDNWIN sample library file is show below.

```
LIBRARY RNDWIN
DESCRIPTION 'RNDWIN -- Custom Defined Function for Windows'
EXETYPE WINDOWS
STUB 'WINSTUB.EXE'
CODE MIOVEABLE DISCARDABLE
DATA MOVEABLE SINGLE
HEAPSIZE 2048
EXPORTS
Rounding      @1
WEP           @2 RESIDENTNAME
```

This file must list all functions in the library. If the library had a second function, you would add its name below **Rounding**. Each command in the Module Definition File is explained below.

- * **LIBRARY** tells the linker the name of the library (e.g. RNDWIN).
- * **DESCRIPTION** holds an optional statement up to 128 characters used to list descriptive information or remarks.
- * **EXETYPE WINDOWS** tells the linker to create a Windows file.
- * **STUB** defines the file, WINSTUB.EXE.
- * **WINSTUB.EXE** provides information to a user who tries to run a Windows module from the DOS command line.
- * **CODE MOVEABLE DISCARDABLE** gives the Windows memory manager the most discretion in loading code segments to ensure that they are available when needed.
- * **DATA MOVEABLE SINGLE** lets the memory manager move the data segment if necessary and indicates that the DLL has a single data segment (as required by all Windows DLLs).
- * **HEAPSIZE 2048** indicates the initial and minimum size of the DLL's local heap. Indicate a heapsize that is large enough to meet the requirements of your CDF.
- * **EXPORTS** must be followed by the name of each CDF in the file (in uppercase).

For efficient operation of the dynamic-link mechanism, each CDF is assigned a unique sequential number and the **RESIDENTNAME** keyword is included. The termination routine, **WEP**, is listed last.

When you link the functions, you must list the Module Definition File in the **LINK** command line.

Note: The rounding CDF in this chapter is shipped with DataEase and can be installed with the installation program.

Creating a Windows Dynamic Link Library File

After you write the CDFs your application requires and the routines Windows requires for the DLL file, you must compile and link them to create a Windows DLL file that can be called from DataEase. The DLL can contain one or more CDFs.

Creating a Library File with Microsoft C

DataEase includes a sample file called RNDWIN.MAK, that you use with the Microsoft MAKE programming utility to automate the production of the sample RDNWIN library file. RNDWIN.MAK is a MAKE description file, which is used instead of the compiling and linking commands that are otherwise required.

Note: you can use RNDWIN.MAK as a model to help you create a MAKE description file to link the CDFs for your application. Use an ordinary text editor to read RNDWIN.MAK

Creating a Library File with Borland C

For use with Borland C compilers, DataEase includes the sample file RNDWIN.PRJ that is used to automate the production of the sample RNDWIN library file. RNDWIN.PRJ is a binary project file which is used in place of the compiling and linking commands that are otherwise required.

Naming and Storing DLL files

When you compile and link a Windows Dynamic Library file, you give it a DLL extension. Each DLL must be assigned a unique filename.

Windows looks for Dynamic Link Libraries in the Windows System directories and in directories specified in the PATH command of your AUTOEXEC.BAT file. Place your CDF.DLL either in a directory in the existing path or add the DataEase System directory to your PATH.

Registering a CDF

Before you use a CDF with DataEase, you must register the CDF in the Custom Functions Form of the application that will access it. Enter a Custom Function record for each CDF, even for those in the same DLL file.

Use the Function Parameters fields to tell DataEase the name and type of value(s) you want passed to the application.

The Custom Functions Registration Form. Note that it includes the name and type of data for each parameter passed to the function.

Custom Defined Functions -- Description Template

Function Name:

OS Type: ☐ DOS ☐ OS/2 ☐ DOS16M ☒ WINDOWS

Description:

CDF Library Name:

Return Type: DOS Mem Req't:

DOS Entry Point:

Parameters

	Name:	Type:		Name:	Type:
1.	FloatPointValue	Double	6.		
2.	FractionalConstant	Double	7.		
3.			8.		
4.			9.		
5.			10.		

(use Toolbar for other record actions)

Passing parameters to CDFs

If you pass a parameter and the DataEase data type of the value does not match the specified parameter type, DataEase converts the data into the correct type before passing the data to the function.

To pass a character string to a function, the function must pick up the address of the string as the parameter (by reference). The character string is **not** passed by a value. You receive a copy of the string; the DataEase value being passed does not change.

Passing Values to a CDF from the Current Record

The parameter type(s) that you specify on your Custom Functions record for the function dictates how the data values are passed to the function.

For example, if you want to pass the values of the NAME and SALARY fields to a CDF (called "Compute") which accepts parameters defined as **String** and **Double**, you would enter the following function call;

```
NEWSAL:= COMPUTE (name, salary)
```

When processing reaches this line in the query, DataEase assigns the NEWSAL variable to the value returned by the Compute Function. The two parameters that DataEase passes to the function are the address of the copy of the string for the NAME field (**STRING** parameter type) and the value in the SALARY field (**FLOAT** parameter type) in the current record.

Modifying Parameters

If you modify one or more function parameter types, you must modify the reference in the Derivation Formula, Validation Formula, or in the expression for a Button or Picture action accordingly.

Using a CDF with DataEase

To use a registered CDF, include the assigned function name and parameters in the Derivation Formula or Validation Formula for a field, or in the expression for a Button or Picture action.

Executing CDFs in Different DLL files

If two or more CDFs are referenced in the same document, when DataEase encounters the second CDF, it checks to see if that function's DLL file is already dynamically linked.

If the DLL is linked, DataEase executes the function. If the DLL file is not linked, DataEase must call Windows to link the function.

Sample CDF

The example on the next page shows you how to create a simple Custom-Defined Function (CDF) for use with a DataEase application. The example was created with the Microsoft C 5.1, 6.0 and 7.0 compilers, and indicates line numbers so you can quickly find the sections of code referred to in the appendix.

The CDF, **Rounding**, is a working function that performs as follows:

Given a floating point number and a decimal value, the function rounds the floating point number to the next highest or lowest number, based on a comparison of the fractional portion of the floating point number with the given decimal value. If the fractional portion is larger than the decimal value, the function rounds up to the next highest number; otherwise, the function rounds down and returns the next lowest whole number.

Running the Rounding CDF from a Derivation or Validation Formula

To execute the Rounding CDF from a Derivation or Validation Formula, the formula might read:

If (float_field not = blank and Decimal_field not = blank, ROUNDING (float_field, Decimal_field), blank)

...where float_field and Decimal_field may be any DataEase fields accessible to the form, or actual values. The test for blank values prevents the CDF from executing unless the two values being passed actually contain data.

The figure below illustrates how the sample CDF might be used in an application.

Main Form

SubForm

Field 1

Field 2

Destination Field, showing the derivation formula.

if (lookup FORM1 field1 not = blank
and FORM1 field2 not = blank,
ROUNDING (lookup FORM1 field1,
lookup FORM1 field2))

DataEase uses the value in Field1 of the Subform as the first parameter - the floating point number. The value in field2 is used as the second parameter - the decimal value.

To display the value returned by the CDF in the DESTINATION field of the MAIN form, a Derivation Formula is used.

The Derivation Formula tells DataEase to use the CDF when calculating the value in the field.

For example, enter 56.75 in Field1 and .8 in Field2. Since the fractional point portion of the floating point number, .75, is less than the decimal value of 0.8, the Rounding function rounds down and returns the next lowest whole number - 56.

DataEase lets you choose between two Double Return types. Because the sample CDF is compiled with a Microsoft C compiler, the first Double option is chosen. When you use a Borland C compiler and want to specify Double, choose the Double BC Return Type.

RNDWIN - The Source Code

This section contains the C code for the sample CDF, Rounding, compiled with the Microsoft C 5.1, 6.0 and 7.0 compilers.

Note: RNDWIN.DLL is linked as a Windows Dynamic Link Library and can be executed only by Windows versions of DataEase.

```

1          /*****/
2          /* Module-Definition File: RNDWIN.DEF */
3          /*Program Name: RNDWIN */
4          /* Compiling under MS-C: */
5          /*Compiling Command listed below: */
6          /* CL -c -Asnw -Gsw -Os -W2 RNDWIN.C */
7          /* Linking:link RNDWIN LIBENTRY, */
          /* RNDWIN/MAP, /NOE /NOD SDLLCEW */
          /* LIBW, RNDWIN.DEF */
          /*****/

8      #include windows.h          /* Include Header Files */
9      #include ath.h

10                                     /* Function Prototype Definitions */
11      double FAR PASCAL Rounding   /* CDF */
          (double, double);
12      double Absolute Value (double) ;          /* Local Function */
13      int IsInPartSigned (double)          /* Local Function */
14                                     /*****/

15                                     /* Function Name: LibMain */
16                                     /*Function Description: Windows calls */
          /* LibMain once, when Library ID is first */
          /* loaded. LibMain performs initialization */
          /* for the DLL. */

17
18                                     /* Calling Convention: PASCAL */
19                                     /* Incoming Arguments: */
          /* Arguments          Data-Type */
20                                     /* (1) hinstance          HANDLE */
21                                     /* (2) wDataSeg          WORD */
22                                     /* (3) cbHeapSize          WORD */
23                                     /* (4) LpszCmdLine          LPSTR */
24                                     /* Outgoing Arguments: None */
25                                     /* Return Value: 1for successful */
          /*initialization */
26                                     /*****/

```

```

27  Int FAR PASCAL LibMain
    (HANDLE hinstance, WORD
    wDataSeg, WORD cbHeapSize,
    LPSTR lpszCmdLine)
28  {
29  If (cbHeapSize !=0)                /*Id DLL Data Segment is MOVEABLE */
    UnlockData(0) ;
30  return(1) ;                       /*Return value 1, initialize is a success */
31  }

32                                     /*****/
33                                     /*Function Name: Rounding (CDF) */
34                                     /* Function Description: performs custom */
35                                     /*rounding of a floating-point value to the */
36                                     /*nearest integer */
37                                     /* Calling convention: PASCAL */
38                                     /*Incoming Arguments */
39                                     /* Arguments          Data Type */
40                                     /* (1)NumericValue    double */
41                                     /* (2)FractionalConstant double */
42                                     /* Outgoing Arguments: None */
                                     /*Return Value: Rounding-data type: double */
                                     /*****/

43  double FAR PASCAL Rounding
    (double FloatPointValue,
    double FractionalConstant)
44  {
45  double FractionalPart,
46  IntegerPart ;
47  FractionalPart =mod(FloatPointValue,
                       &integerPart;
48  If (AbsoluteValue(FractionalPart) >
    AbsoluteValue(FractionalConstant) )
49  {
50  if (IsIntPartSigned(IntegerPart))
51  integerPart = 1 ;
52  else
53  integerPart+=1 ;
54  }
55  return(IntegerPart);
56  return(FloatPointValue+FractionalConstant) ;
57  }
58                                     /*****/

```

```

59      /*Function Name:      */
      /*AbsoluteValue(Local Function */
60      /*Function Description: */
      /*Returns the absolute value of its */
61      /* floating-point argument to the */
      /*function "Rounding". */
62      /* Calling Convention: cdecl      */
63      /* Incoming Arguments */
64      /* Arguments          Data Types */
65      /* (1) SignedValue    double */

66      /*Outgoing Arguments: None */
      /*Return Value: AbsoluteValue - */
      /*data type: double */
67      /*****/
68      double AbsoluteValue (double
      SignedValue)
69      {
70      double AbsValue ;
71      AbsValue=fabs(SignedValue);
72      return(AbsValue);
73      }
74      /*****/
75      /*Function Name: */
      /* IsIntPartSigned(Local Function) */
76      /*Function Description: */
      /* Determines if its floating-point */
      /*argument is signed. */
77      /*Returns (0) if not signed, */
      /*Returns (1) if signed. */
78      /*Calling Convention: cdecl */
79      /*Incoming arguments: */
80      /* Arguments          Data Type */
81      /* (1)SignedValue    double */
82      /*Outgoing Arguments: None */
83      /*Return Value:      */
      /*IsIntPartSigned - data type :int */

84      int IsIntPartSigned (double
      SignedValue)
85      {
86      if (SignedValue >=0)
87          return(0);

```

```

88     else
89         return(1);
90     }
91
92     /* Function Name: WEP */
93     /* Function Description: */
94     /* performs cleanup of the DLL */
95     /* before it is unloaded */
96     /* Calling Convention: PASCAL */
97     /* Incoming Arguments: */
98     /* Arguments          Data Type */
99     /* (1) hParameter      Int */
100    /* Outgoing Arguments: None */
101    /* Return Value: 1 if initialize is */
102    /* successful.    */
103    /* ***** */
104    VOID_export FAR PASCAL WEP
105    (intnParameter)
106    {
107        return(1) ;
108    }

```

End of source code. Note that this code - source and compiled version - is included with DATAEASE, shipping as an example Custom Defined Function.

Index

- 3D EditBox**, 168
- Accelerator**, 259
- Acknowledgments, 14
- Action Selection, 157
- Add or Remove Fields using QBM, 249
- Adding an ODBC Database Link, 313
- Aligning Objects, 115
- Align to Grid**, 115
- Analyzing data, 49
- Application, 22
- Application Catalog, 24, 141
- Application Menu, 264
- Application Preferences, 302
- Application Status Reports, 299
- Application Variable, 207
- Assigning Actions to Objects, 157
- Backing Up Application Files, 288
- Backup Application**, 286
- Basic Colors**, 152
- Blank Values, 59
- Body, 126
- Both Sizes**, 117
- Bottom Edges**, 115
- Break a Link, 120
- Button Object**, 201
- Calculation**, 184
- Cancel Link**, 119
- Canceling a Print Job, 95
- Cascade**, 273
- Change Link**, 119
- Change the Default Printer, 98
- Choice List, 176
- Closing an Application, 101
- Club ParaDEASE**, 17
- Club ParaDEASE Tables, 68
- Cluster Order**, 254
- Clusterable Columns**, 254
- Collapsing a Catalog List, 141
- Collate Copies**, 95
- Color Dialog, 152
- Color Hue**, 153
- Color Refiner Box**, 153
- Composite Keys, 53
- constant** value, 189
- Controlling Access, 47
- Convert to DQL**, 241
- Copies**, 95
- Copy Data**, 90
- Copy Relationships**, 90
- Copyright, 13
- Correcting a Mistake, 105
- count of**, 185
- Create a Multiform, 277
- Create a Style, 227
- Create an Application, 69
- Creating a Document, 72
- Creating a Document Object, 146
- Creating a DQL Procedure, 38
- Creating a Menu, 85
- Creating a Report, 32, 85
- Creating a Windows DLL, 325
- Creating CDFs, 322
- Creating Documents, 25
- Creating forms, 25
- Creating Headers and Footers, 127
- Creating Summary Headers and Footers, 128
- Currency Field, 171
- Custom Colors**, 152
- Custom Colors Palette**, 153
- Custom Defined Functions, 278
- Custom Field, 219
- Custom Menus, 37
- Custom Relationship Name**, 272
- Custom Tab Order, 251
- Customizing Menus, 257
- Data Value Options, 307
- Database Location**, 90

- Database Styles, 43
- Database Tables, 51
- DataEase Application, 22
- Date Field, 173
- dBASE Datatype Conversion, 315
- Decimals**, 170
- Default**, 184
- Define Custom Colors**, 152, 155
- Defining Document Objects, 161
- Defining Relationships, 29, 63
- Delete Application**, 45
- Derivation Formula, 183
- Designer View, 19, 22, 40, 100, 138
- Designing a Database, 55
- Desktop Toolbar, 46
- Digits**, 170
- Display Attributes, 151, 195
- Display Attributes Dialog, 205
- Display Hidden Outlines, 131
- Display Length**, 196
- Displaying Form and Record Labels, 132
- Displaying forms, 28
- Displaying Rulers, 133
- Displaying SQL Statements, 143
- Displaying the Grid, 134
- Document Layout, 82
- Document Menu, 229
- Document Performance, 254
- Document Status Report, 300
- DOS Filenames, 91
- DQL Function**, 183
- DQL Selection Criteria in QBM, 250
- Drawing Objects, 206
- Dynamic Link Library, 322
- Edit Link**, 119
- Edit Menu, 102
- EditBox**, 168
- Editing Links, 119
- Editing Objects, 107
- Ellipse, 206
- Encrypt User File**, 303
- Engine Support, 311
- Enlarging or Reducing, 137
- Exiting DataEase, 101
- Expanding a Catalog List, 141
- Fast Text Index**, 167
- Field Characteristics, 27, 53
- Field Data Options, 54, 180
- Field Help Messages, 192
- Field Layout**, 83, 158
- Field Object, 164
- Field Overflow**, 234
- Field-Level Security, 237
- File Menu, 71
- File Menu Options, 45
- Fixed Point**, 170
- Floating Point**, 170
- Font Dialog, 156
- Font Name**, 156
- Font Size**, 156
- Font Style**, 156
- Foreign Databases, 311
- Form defining Table, 79
- Form Definition, 200
- Forms and Tables, 61
- Generate Statistics using QBM, 250
- Generating Statistics, 246
- Getting Help, 16
- Graphic Objects, 206
- Grid, 134
- Grid and Ruler Options, 135
- Grid Settings, 136
- Group By**, 240
- Group Records using QBM, 250
- Grouping Records, 243
- Help Menu, 310
- Horizontal Center**, 115
- Horizontal Size**, 117
- Image Fields, 220
- Image Search path**, 305
- Image Search Path, 220
- Imagefield**, 168
- Import Status Report, 301
- Importing Data, 99

Improving Query Performance, 254
Include Definition, 94
 Indexing Clustered Columns, 255
 Install a Single Document, 296
Install Application, 286
Installation Command File, 295
 Installing Documents, 293
Integer, 170
 Joining SQL Tables, 276
Justification, 195
Label, 196
 Layout Options, 83, 158, 247
Left Edges, 115
 Line, 206
 Linking and Embedding, 108
 Linking Database Tables, 63
 Linking to a Foreign Database, 312
 Linking to External Engine, 283
Links Update, 119
Lock Application, 286
 Locking an Application, 298
 lookup, 30
Lookup, 184
Mailing Label, 158
 Maintaining an Application, 286
 Making Objects the Same Size, 117
Many-to-many relationships, 66
 Match Fields, 271
 Memo Field, 179
 Menu Editor Dialog, 258
Message Log File, 294
Migrate Application, 45
 Minimum Security Levels, 268
 Modifying a Table, 91
 Modifying Key Attributes, 121
 Modifying Layouts, 84
 Modifying Pull-Down Menus, 257
 Move an Object, 148
 Multiform Tab Order, 252
Multiline, 195
 Multiple Views, 62
Native table, 181

New Application, 45
 New Document Dialog, 77
 New Document Layout, 247
 New Relationship Dialog, 242
 New Table Dialog, 79
 Normalizing Database Tables, 56
 Normalizing Tables, 49
 Number Field, 170
 Numeric String, 168
 Object, 145
Object Embedding, 108
 Object Express Menus, 44, 150
Object Linking, 108
 Object Palette, 42, 140
 Object Restrictions, 149
 Object Styles, 223
 Objects Menu, 144
 OLE Object, 109, 214
One-to-many-relationship, 65
One-to-One Relationship, 65
Open Application, 45
Operators, 184
 Overlapping Objects, 148
 Owning versus Using a Table, 317
 Page Footer, 126
 Page Header, 126
Page Size and Orientation, 234
 Page Total, 213
Pages, 95
Paper Size, 97
Paper Source, 97
 Parts of a Report, 32
 Passing parameters to CDFs, 326
 Passing Values to a CDF, 326
 Paste an Object, 107
 Paste Special Dialog, 113
 Picture Definition, 203
 Picture Object, 203
 Picture Objects, 220
 Placing fields, 26
 Planning Relationships, 63
Preserve old CURRENT DATE, 231

Prevent Entry, 180, 184

Print Detail, 94

Print Dialog Options, 94

Print Setup Options, 96

Printing a Report, 36

Printing Document Information, 94

Query By Model, 32, 229, 238

Range, 95

Record Layout, 83

Rectangle, 206

Redundant Values, 60

Refreshing a Database Link, 312

Registering a CDF, 279, 326

relationship name, 183

Relationships Form, 271

Rename Application, 45

Rename Database Link, 285

Reorganize Form, 286

Reorganizing a Form, 256

Repeating Columns, 57

Report Layouts, 35

Required, 180

Resizing an Object, 146

Restore a Broken Link, 120

Restore Application, 286

Restore to New Location, 291

Restoring an Application, 290

Restrict, 273

Restrictions on Using ODBC, 314

Right Edges, 115

RNDWIN Source, 330

Rounding CDF, 328

Ruler Settings, 136

Rulers, 133

Running Total, 213

Sales and Support, 13

Sample Application, 17

Sample CDF, 328

Saving a Style Sheet, 93

Searching for Text Strings, 122

Security Levels, 236

Select Action, 157

Select Parent Records, 240

Select Records using QBM, 249

Selecting All Objects, 118

Selecting Objects, 105

Selecting Records, 242

Sequence of Print Dialogs, 98

Sequenced ID Field, 175

Server C, 273

Server SN, 273

Server Status Report, 300

Set Null, 273

Set Printer Default Settings, 98

Setting Printing Defaults, 233

Setting up Printers, 96

Show and Hide, 132

Size to fit, 195

Sort By, 240

Sort Records Using QBM, 249

Sorting Records, 243

Sound Clips, 217

SQL Engine Functions, 316

SQL Statements, 143

SQL System Administrator, 265

SQL table, 181

Starting DataEase, 45

Startup Document, 269

Status Bar, 140

Status Cascade Menu, 299

Structured Query Language, 282

Style Sheets, 224

Subform, 198

Subform Group, 199

Summarize, 240

Summarize Field Property, 193

Summary Footer, 126

Summary Header, 126

Summary Variable, 210

Suppress automatic TAB, 231

Suppress Spaces, 195

System Administrator, 265

System Functions, 266

Tab Order, 251

- Table Diagram**, 241
- Table Name**, 90
- Table View Options**, 196
- Text Data Type, 167
- Text Object, 162
- Time Field, 174
- Time Format**, 174
- Toolbars, 20
- Top Edges**, 115
- Trademarks, 13
- Types of Databases, 23
- Types of Documents, 73
- Types of Form, 62
- Typographical Conventions, 16
- Undo and Redo, 106
- Unique Keys, 51
- Update a Manual Link, 120
- User Help, 48
- User Name**, 266
- User Password**, 266
- User Permissions, 316
- User Privileges, 316
- User View, 18, 41, 100, 139
- User View Options, 302
- User-Level Security, 237
- Users Form, 266
- Using a CDF, 281
- Validation Formula, 188
- Vertical Center**, 115
- Vertical Luminosity**, 153
- Vertical Size**, 117
- Video Clips, 217
- View Menu, 123
- Viewing a Record Status Report, 299
- Viewing Related Records, 31
- Viewing the Data-Entry Form, 129
- Viewing the DQL Script Editor, 130
- Virtual**, 180
- Window Menu, 309
- Writing a CDF, 323
- Yes/No Field, 178
- Zoom in**, 123
- Zoom Out**, 123