Visual Basic's Database Programming Interface

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**Name of demo code ZIP file:
VBDA_SF.ZIP**

Visual Controls

Data Control - central connection to a table or query for a form
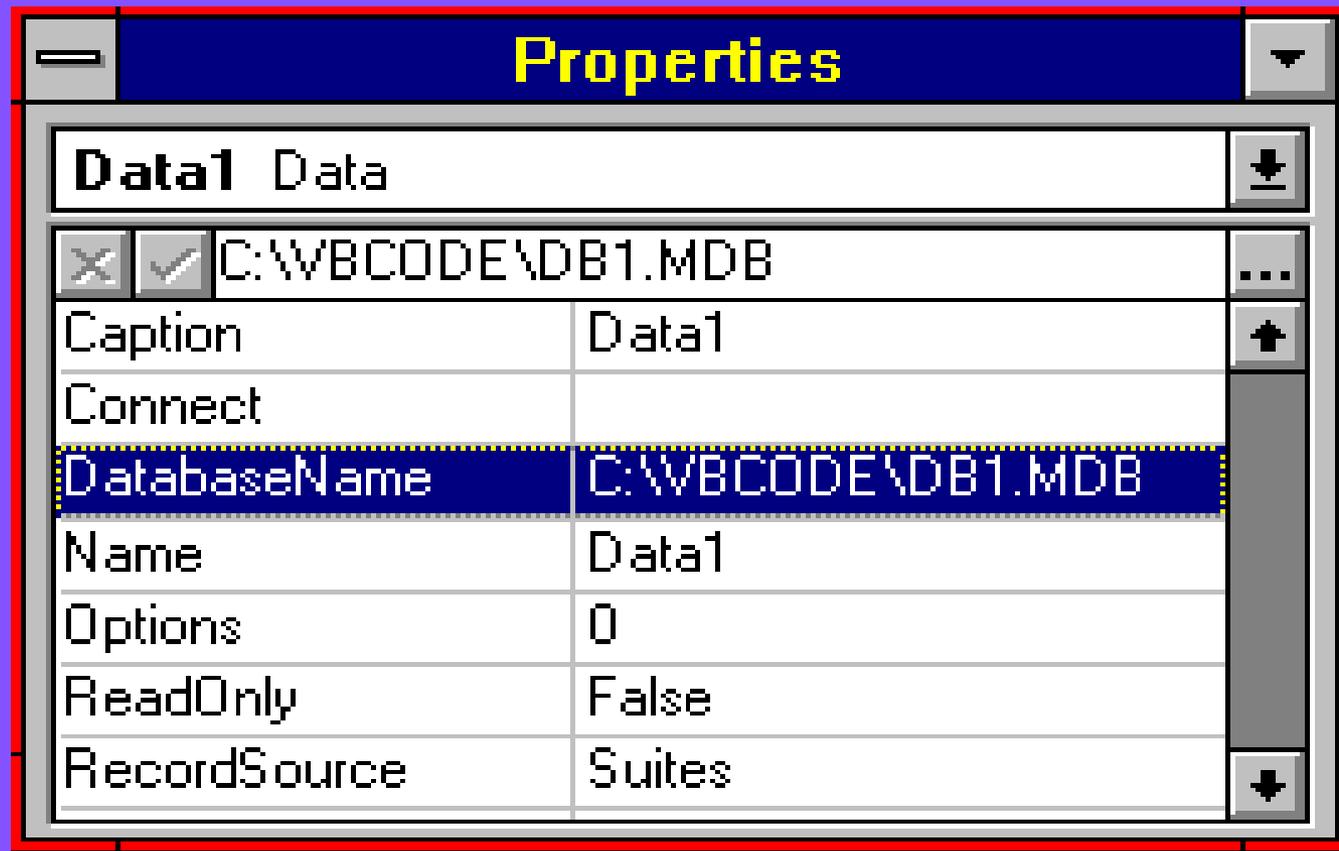
Bound Controls - any control that has the ability to communicate internally with the data control

3rd Party Controls - custom controls developed by ISVs that are data aware

Data Control

Data Control Properties

Data1 Data	
C:\VBCODE\DB1.MDB	...
Caption	Data1
Connect	
DatabaseName	C:\VBCODE\DB1.MDB
Name	Data1
Options	0
ReadOnly	False
RecordSource	Suites

Data Control Methods

Refresh - recreates the original Dynaset from the current data in the table(s). Useful on multi-user systems where newly added records need to be folded in occasionally.

UpdateControls - resets all bound controls to the data in the Dynaset. Useful when a user wants to cancel changes made to the bound controls.

Data Control Events

Error - gets fired instead of a run-time error so errors that occur below the developers control may be trapped and handled

Reposition - fires whenever a Move method is executed internally or through code

Validate - fired on actions such as Move, Delete, AddNew, Update, Close

Bound Controls Properties

DataSource - binds the control to a particular data control

DataField - binds the control to a column or field in the RecordSet of the data control. This property is optional so certain types of controls such as a spreadsheet or grid could be bound to all of the columns in a Dynaset

Bound Controls by 3rd Parties

There is currently a few custom controls available from 3rd parties with the number growing rapidly

The CDK has been enhanced to provide the links by which virtually any control may become data aware with little or no coding added (unless special handling of the data is needed)

Break

Time for a Break

Data Access Objects

Database

Dynaset

Table

Snapshot

QueryDef

Collections - Fields, Indexes

TableDef

DDL - Data Definition Language

Allows the creation and modification of tables and their components

Ability to create all types of databases supported (Access, dBase III and IV, FoxPro 2 and 2.5, Paradox 3.X and Btrieve)

Attached Tables

Referential Integrity Support

DML - Data Manipulation Lang.

Objects - Table, Dynaset, Snapshot

Methods - Move, Find, AddNew, Delete, Update, Seek

Properties - Sort, Filter, BookMark

Tables

All Records and All Fields

Show newly added records in multi-user environment

Fastest record positioning with Seek method

Sorted output depending on Index chosen

Dynasets

Selectable criteria for data set

Filter and Sort capability

Multi-Table joins

Updatability - depends on indexes, join characteristics, backend specifics, etc.

Great for big record sets (>1000 rows) where criteria is needed to limit or sort the data

Snapshots

Read Only

Very fast for small data sets

Filter and Sort capability

Best choice for MoveNext loops such as Grid or ListBox filling

The result of a PassThrough Dynaset

Crystal Reports

Two pass report generator

Easy integration into VB apps

Run-time selection of record criteria

New Enhanced Version 3.0 is better integrated

Crystal Design Environment

Integrated into VB environment through Window menu

Similar to MS Access report designer

Outputs an RPT file for VB app

Intuitive operation of most functions

Crystal Run-time

Implemented as a Custom Control

Allows report criteria to be set at output time via the SelectionFormula property

ODBC Specifics

Setup - INI and DLL files

Differences between ODBC and ISAM access

Drivers - some available, many under development

Levels of conformance

ODBC Setup

Installation w/ VB Setup

INI Files - ODBC.INI, ODBCINST.INI

ODBC DLLs - ODBC.DLL, ODBCINST.DLL

Driver DLLs - SQLSRVR.DLL, etc.

Control Panel Changes

Distributing Apps - Use the Setup Wizard

ODBC Variations from ISAMs

Table object not available

SQL Passthrough is available so ANSI SQL as well as driver specific syntax is supported

Attach data sources to an MDB file for connection efficiency

RJETWP.DOC included on sample disk for information on using ODBC with the Microsoft database engine (Jet)

ODBC Drivers

Catalog available from ODBC (800) 227-4679

SQL Server and Oracle shipped by Microsoft with VB 3.0 and Access 1.1

DRIVERS.DOC included on sample disk for info on drivers being developed

ODBC Conformance Levels

VB mainly concerned with SQL Grammar conformance

Three levels include Minimum, Core and Extended

DDL possible with Core level or better

10 Most Common Pitfalls

Using the Grid control

Using the ListBox

Linking Non-Bound controls

"No Current Record" error

ODBC Setup

Non-Updatable Dynasets

Defining Queries

Crystal Reports unique syntax

SQL Passthrough

Table vs Dynaset vs Snapshot vs Bulk Query

Using the Grid control

Keep number of rows to as few as possible

Make it updatable by storing the BookMarks in a hidden column for quick reference back to the row to update (See VisData)

Simulate a multi-column ListBox with some simple code in the grid events

Using the ListBox control

Watch out for Null values

Copy ListBox data from form to form if needed instead of getting the data from the database multiple times

Sorted vs Unsorted

Linking Non-Bound controls

Picture control loading and saving (see Unbound sample app)

Validating changes with flags

Refreshing controls

Using a bound control to set the value from a list control (see Cardfile app)

"No Current Record" error

Prevent error from ever ocurring

Handle Empty Table condition

Handle last record delete

ODBC Setup

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Control Panel Changes

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Non-Updatable Dynasets

No unique index

Database not updatable for some reason

Multi-Table joins with incorrect SQL query (Try it in Access)

Read Only flag set by mistake

Read Only value carried over from previous open on same database

Defining Queries

Microsoft Access is an incredibly powerful tool for creating, testing and modifying queries

For SQL Server specific queries, use something like SAF or SQL Admin to verify the query

Action queries - Update, Append, MakeTable, Delete

CrossTabs - Create them in Access, run them with VB

Crystal Reports unique syntax

Place "{}" around field names

Handling Dates

Case sensitivity - use UCase()

SQL Passthrough

Only valid against ODBC sources

Use to create Dynasets/Snapshots

Use ExecuteSQL method which defaults to SQL Passthrough

Use Execute with Passthrough bit set (CreateSnapshot workaround)

Allows ANSI SQL and backend specific functions such as stored procedures on SQL Server

Table vs Dyn vs Snap vs BQ

Use Table when a single table is used and fast record movement is needed

Use Dynasets for flexibity and updatability

Use Snapshots for small readonly data sets and when filling grids or lists

Use Bulk Queries for Deleting or Updating sets of records

Tips...

VB.INI missing after NT install causes missing Data Control

FindFirst on PassThrough recordset available after SS.CreateSnapshot()

Use Transactions for looped updates

Q and A

Ask Away...