Using the Data Access Controls: DAO & ADO
VB & Database Systems

New Technologies in VB6

- ActiveX Data Objects (ADO)
- DataList and DataCombo replace DBList and DBCombo.
- The DataGrid is the successor to DBGrid.
- The Chart control is now data bound.
- New Hierarchical FlexGrid
- The Data Report is a new ActiveX designer
- Data Formatting and Data Validation
- DHTML and Data Access
DAO Control

- Previous versions of VB used the Data Access Object Control: **DAO**.
- DAO is/was particularly good for MS-Access and MS-SQL-Server databases.
- DAO has limitations in dealing with non-Microsoft databases.
DAO Connections

VB- Program

DAO Control

MS
Jet
Engine

MS-Access
Database

SQLPassThrough-Mode

ODBC

ORACLE
Terminology

**RECORDSET**

- Represents the data in a table, or the result of a SQL select statement.

- You can use recordsets to view, update, or delete data in the base tables.
Using the Old DAO Control

DAO Data Access Control

MOVE: First, Last, Next, Previous

Data Aware Text Boxes

Data Aware OLE Container
Making the DAO Application

*Make the following form*

Control Names:
- txtFirstName
- txtLastName
- txtID
- lblID
- olePhoto
- datEmployee
**datEmployee: DAO**

- Change the following attributes of `datEmployee`:
  - **Name**: `datEmployee`
  - **DatabaseName**: `Nwind.mdb`
  - **RecordSource**: `Employees`
  - **Caption**: `Employees`
## Data Aware Controls

Change the Text-boxes and OLE box to:

<table>
<thead>
<tr>
<th>Control</th>
<th>Name</th>
<th>Data Source</th>
<th>Data Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text1</td>
<td>txtLastName</td>
<td>datEmployee</td>
<td>LastName</td>
</tr>
<tr>
<td>Text2</td>
<td>txtFirstName</td>
<td>datEmployee</td>
<td>FirstName</td>
</tr>
<tr>
<td>Text3</td>
<td>txtID</td>
<td>datEmployee</td>
<td>EmployeeID</td>
</tr>
<tr>
<td>OLE1</td>
<td>olePhoto</td>
<td>datEmployee</td>
<td>Photo</td>
</tr>
</tbody>
</table>

- **Size Mode**: 1 - Stretch
The New ADO Control

- VB6 recommends using the ADO control instead of the older DAO-RDO.
- ADO works well with local desktop DBMS software and remote database servers.
- You need the Professional/Enterprise edition of VB.
ADO Control & OLE DB
Example 1. ADO + JetEngine

- Use the ADO control to show records in the MS-Access BIBLIO.MDB database.
- Use the native “Jet-Engine” connection.
**Example 1. ADO + JetEngine**

- **Objects and Property Settings for the Authors Project.**

<table>
<thead>
<tr>
<th><strong>Object</strong></th>
<th><strong>Property</strong></th>
<th><strong>Setting</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Caption</td>
<td>Authors: ADO &amp; JetEngine</td>
</tr>
<tr>
<td>ADO DC1</td>
<td>Name</td>
<td>adoAuthor</td>
</tr>
<tr>
<td></td>
<td>Caption</td>
<td>Authors</td>
</tr>
<tr>
<td>Text1</td>
<td>Name</td>
<td>txtID</td>
</tr>
<tr>
<td></td>
<td>DataSource</td>
<td>adoAuthor</td>
</tr>
<tr>
<td></td>
<td>DataField</td>
<td>Au_ID</td>
</tr>
<tr>
<td>Text2</td>
<td>Name</td>
<td>txtName</td>
</tr>
<tr>
<td></td>
<td>DataSource</td>
<td>adoAuthor</td>
</tr>
<tr>
<td></td>
<td>DataField</td>
<td>Author</td>
</tr>
<tr>
<td>Text3</td>
<td>Name</td>
<td>txtYearBorn</td>
</tr>
<tr>
<td></td>
<td>DataSource</td>
<td>adoAuthor</td>
</tr>
<tr>
<td></td>
<td>DataField</td>
<td>YearBorn</td>
</tr>
</tbody>
</table>
Example 1. ADO + JetEngine

**ConnectionString**

- The *ConnectionString* can be set up at design and run time.
- It tells VB how to get to the database.
- The Options are:
  - Jet Engine OLE DB (native to Microsoft Access)
  - ODBC (generic)
Example 1. ConnectionString

- Adjust the property page of adoAuthor

Set CommadType: 2-adCmdTable

Click on ConnectionString button
Example 1. ‘Use Connection String’

Click on Option3

Push BUILD
Example 1. Jet 3.51 Provider

Pick: JET 3.51 OLE DB Provider

Click on Next
Example 1. Database Name

Click on ... button to locate file

Select Biblio.mdb

Test the connection, then push OK.
Example 1. RecordSource

Push ... on the adoAuthor RecordSource attribute

Choose the Authors table

Apply, then OK
Example 1. Save & Run

- Save all your files.
- Execute the application.

![Using ADO & Jet-Engine dialog box showing ID 1, Name: Jacobs, Russell, Year Born: , and Authors: ]
Example 2. Using ODBC

- **Open Data Base Connectivity (ODBC)** is a software protocol to allow client applications -*written in any language*- to gain access to a database system.
Example 2. ODBC

- Making ODBC connections in VB is a convenient practice because the steps involved are the same for all types of compliant database systems.

<table>
<thead>
<tr>
<th>Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-Access</td>
</tr>
<tr>
<td>MS-SQL Server</td>
</tr>
<tr>
<td>Oracle</td>
</tr>
<tr>
<td>Sybase</td>
</tr>
<tr>
<td>IBM - DB2</td>
</tr>
<tr>
<td>SAP</td>
</tr>
<tr>
<td>...</td>
</tr>
</tbody>
</table>
Example 2. ODBC Data Source

Odbc Data Source

A named Open Database Connectivity (ODBC) resource that specifies
• the location,
• driver type, and
• other parameters
needed by an ODBC driver to access a database.
Example 2.
Adding an ODBC Data Source

- Bring the ODBC-Administrator from the Control Panel

Choose the 32bit ODBC manager
Example 2.
Adding an ODBC Data Source

Click on the Add button
Select driver
Example2

1- Name the source: myBiblioLink
2- Add a comment
3- Click Select
4- Locate the file
5- Push OK