

Manipulating Complex Data Types using DAO

New in Office Access 2007 are complex data types—the Attachment data type or any field defined as multi-valued. A complex data type lets you store multiple values or objects in a field within a single record. Access 2007 accomplishes this by building hidden tables that contain one row per multiple value stored. You can manipulate these rows in a recordset in code, but only using DAO.

To work with data in a complex data type field, you must first open a recordset on the table containing the field. You can either open the table directly or open a query that includes the table and its complex field(s). The secret to dealing with complex fields is the Value property of the field in the recordset returns a DAO.Recordset2 object. So, you can set a declared DAO.Recordset2 variable to the Value property to open a recordset on the hidden table. You can manipulate this recordset exactly as you can any other DAO recordset, including using the find and move methods, and the Edit, AddNew, Update, and Delete methods.

When the complex field is a multi-valued field, the recordset returned from the Value property of the parent field contains a single field called Value. You'll find one row per multiple value stored in the complex field. When the complex field is an Attachment, the recordset returned from the Value property of the parent contain three fields—FileData, FileName, and FileType. The FileData field in an attachment complex recordset supports one method, LoadFromFile, that lets you insert the complex OLE data into the record by supplying a file location and name.

The tblContacts table in the Contacts sample database contains both a multi-value field (ContactType) and an attachment field (Photo). In the modExamples module in the Contacts.accdb database, you can find the following code that displays in the Immediate Window the values from both fields for all contact records.

```
Public Sub ListContactComplex()  
    ' An example of listing all the complex values in the Contacts table  
    Dim db As DAO.Database, rst As DAO.Recordset, rstComplex As  
    DAO.Recordset2  
    Dim fld As DAO.Field2  
    ' Point to this database  
    Set db = CurrentDb  
    ' Open a recordset on tblContacts  
    Set rst = db.OpenRecordset("SELECT * FROM tblContacts")  
    ' Loop through all the records  
    Do Until rst.EOF  
        ' Dump out the ID and name  
        Debug.Print rst!ContactID, rst!LastName, rst!FirstName  
        ' Get the contact type complex field  
        Set rstComplex = rst!ContactType.Value  
        ' Loop through them all  
        Do Until rstComplex.EOF  
            ' Dump out each value  
            Debug.Print " ", "Contact Type: ", rstComplex!Value  
            ' Get the next
```

```

        rstComplex.MoveNext
    Loop
    ' Get the Photo Attachment recordset
    Set rstComplex = rst!Photo.Value
    ' Loop through them all
    Do Until rstComplex.EOF
        ' Dump out the data
        Debug.Print " ", "Photo FileName: ", rstComplex!FileName, _
            " File Type: ", rstComplex!FileType
        ' Get the next
        rstComplex.MoveNext
    Loop
    ' Get the next contact
    rst.MoveNext
Loop
' Close out
rst.Close
Set rst = Nothing
Set rstComplex = Nothing
Set db = Nothing
End Sub

```

If you want to find the record for John Viescas and add the value Trainer to the Contact Type field, do the following:

```

Dim db As DAO.Recordset, rst As DAO.Recordset, rstComplex As
DAO.Recordset2
' Set a pointer to the current database
Set db = CurrentDb
' Open the contacts table
Set rst = db.OpenRecordset("tblContacts", dbOpenDynaset)
' Find the record for Viescas
rst.FindFirst "LastName = 'Viescas'"
' Make sure we found it
If Not rst.NoMatch Then
    ' Get the ContactType recordset
    Set rstComplex = rst!ContactType.Value
    ' Add a new row
    rstComplex.AddNew
    ' Insert the new value
    rstComplex.Value = "Trainer"
    ' Save the new value
    rstComplex.Update
End If
' Close out
rst.Close
Set rst = Nothing
Set rstComplex = Nothing
Set db = Nothing

```

To find the contact record for John Viescas, check for the value Trainer in the ContactType field, and delete it if it exists, do the following:

```
Dim db As DAO.Recordset, rst As DAO.Recordset, rstComplex As
DAO.Recordset2
' Set a pointer to the current database
Set db = CurrentDb
' Open the contacts table
Set rst = db.OpenRecordset("tblContacts", dbOpenDynaset)
' Find the record for Viescas
rst.FindFirst "LastName = 'Viescas'"
' Make sure we found it
If Not rst.NoMatch Then
    ' Get the ContactType recordset
    Set rstComplex = rst!ContactType.Value
    ' See if Trainer exists
    rstComplex.FindFirst "Value = 'Trainer '"
    ' If it exists,
    If Not rstComplex.NoMatch Then
        ' Delete it
        rstComplex.Delete
    End If
End If
' Close out
rst.Close
Set rst = Nothing
Set rstComplex = Nothing
Set db = Nothing
```

To check to see if the Photo field for contact Jeff Conrad contains a file named JeffConrad.docx and add it if it does not exist, the code is as follows:

```
Dim db As DAO.Recordset, rst As DAO.Recordset, rstComplex As
DAO.Recordset2
' Set a pointer to the current database
Set db = CurrentDb
' Open the contacts table
Set rst = db.OpenRecordset("tblContacts", dbOpenDynaset)
' Find the record for Conrad
rst.FindFirst "LastName = 'Conrad'"
' Make sure we found it
If Not rst.NoMatch Then
    ' Get the Photo recordset
    Set rstComplex = rst!Photo.Value
    ' See if the JeffConrad.docx file exists
    rstComplex.FindFirst "FileName = 'JeffConrad.docx'"
    ' If it does not exist,
    If rstComplex.NoMatch Then
        ' Start a new attachment record
        rstComplex.Addnew
```

```
        ' Load the file
        rstComplex!FileData.LoadFromFile _
            "C:\Microsoft Press\Access 2007 Inside
Out\Documents\JeffConrad.docx"
        ' Save the new row
        rstComplex.Update
    End If
End If
' Close out
rst.Close
Set rst = Nothing
Set rstComplex = Nothing
Set db = Nothing
```