# *Move Forms & Controls Example*

This example application was developed in response to various forum questions including:
http://www.accessforums.net/showthread.php?t=75572 (ironfelix717)
https://www.access-programmers.co.uk/forums/showthread.php?t=302641 (lana)

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Moving (and resizing) objects to precise locations on the screen is very easy using the ***Move*** method

*expression*.**Move(*Left*, *Top*, *Width*, *Height*)**

For example, ***Forms!Form1.Move 100,200,500,350***
This moves the top left of Form1 to x-y co-ordinates 100,200 and changes the width and height to 500 & 350 (where all values are in ***twips*** – see later)

Similarly, controls can easily be moved on a form.
For example, this code moves Box9 so it is located immediately below textbox Text2:

```
Me.Box9.Left = Me.Text2.Left
Me.Box9.Top = Me.Text2.Top + Me.Text2.Height
```

The example application does both of the above but also demonstrates some much more complex processes.

For example, it shows how:

- A popup form such as a customised zoom box can be moved to a precise position over another form irrespective of form settings
- A listbox record can be 'selected' without clicking on the listbox. This is done by accurately detecting the record underneath the mouse cursor based on the height of each row in the listbox.
  This means the record can be used e.g. to open a filtered form / view an image without actually selecting the listbox record!
- The x-y coordinates of an object on a form can be determined and the object nudged by a specified amount in any direction

Each of these has been successfully tested using a variety of situations:

- Navigation bar - maximised/minimised/removed
- Ribbon - maximised/minimised/removed
- Application window – maximised / restored
- Different screen sizes and resolution
- Enlarging the screen display setting from the default 100% to 125%

Different form conditions have been tested including:

- Border style – none / thin / sizable / dialog
- Scrollbars – none / horizontal only / vertical only / both
- Navigation button bar – visible / hidden
- Record selectors – visible / hidden
- Different fonts – font name / point size & style (bold / italic / underline)

NOTE:
It is NOT possible to hide the application window for this example.
Doing so would require the use of popup forms which isn't possible here due to the simultaneous use of 2 forms in example forms 1-4

There are many complications that need to be managed for this to work well:

1. ***Units of measurement – twips, pixels and points***
   The position of objects in the Access window is determined in **twips (one twentieth of imperial point size)** where 1440 twips = 1 inch or 567 twips = 1 cm

   The x-y coordinates of the top left of the application window are 0, 0

   However, the position of the mouse cursor is measured in **pixels** with reference to the overall screen:
   - 1 pixel (px) = 15 twips so 96px = 1440 twips = 1 inch

   Font size is measured in **points** (pt) where 1 point = 20 twips
   A 72 **point** font = 1 inch = 1440 twips = 96px ;
   12pt = 16px = 240 twips = 1/6 inch, 3 points = 60 twips = 4 px etc

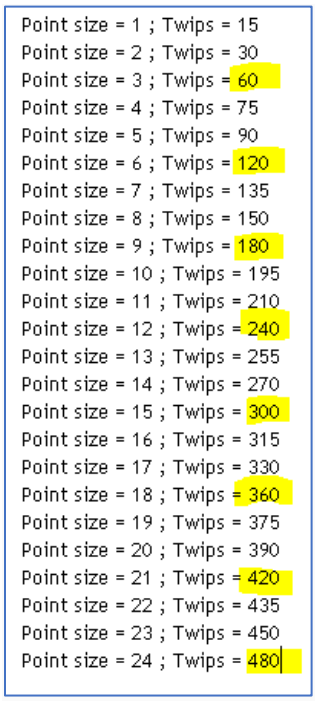
   Complications arise with font sizes that are not factors of 72. For example:
   - 11 pt font =220 twips = 14.667 px but as you cannot have a part pixel that actually requires 15 px
   - 10 pt font =200 twips = 13.33px so this takes up 14px which is a significant difference

   For further info, see https://websemantics.uk/tools/convert-pixel-point-em-rem-percent/

   This makes pt => px conversions difficult to do precisely and can lead to errors on the screen

   There are three main ways of doing this conversion:
   - Use conversion values as above with arbitrary corrections to align objects as well as possible
     This may be adequate for a selected font name & size but is very likely to be inaccurate if either / both of these are altered.

   - Use values calculated by a direct points/pixels to twips conversion based on code such as the ***ConvertToTwipsYFromPoint*** function based on the widely used ***GetSystemMetrics API***.
     This manages the inexact conversion between 72 points and 96 pixels per inch by building in a 'jump' every 3 points




     This approach can work reasonably well for some standard fonts between about 10pt & 14pt.

However, it gets increasingly inaccurate for much larger/smaller fonts. It also makes no allowance for certain fonts e.g. ***Comic Sans*** being taller than the normal value for that point size.
The image below shows a capital A in 13 different standard Windows fonts - all are 72 points

***Stephen Lebans*** uses an enhanced version of this code in several example applications such as

- http://www.lebans.com/SelectRow.htm
- http://www.lebans.com/textwidth-height.htm

The code I originally developed was partly based on the second example above.
I am always amazed by Stephen's ability to do things that us mere mortals would never achieve alone.
Even so, the results using his code are not perfect for all situations

- A MUCH better method makes use of the little known VBA ***WizHook*** function. This actually measures the height and width of a character string based on the font name, font style normal, italic etc.
  This approach should ALWAYS work no matter what the situation.
  My tests confirmed that to be so.

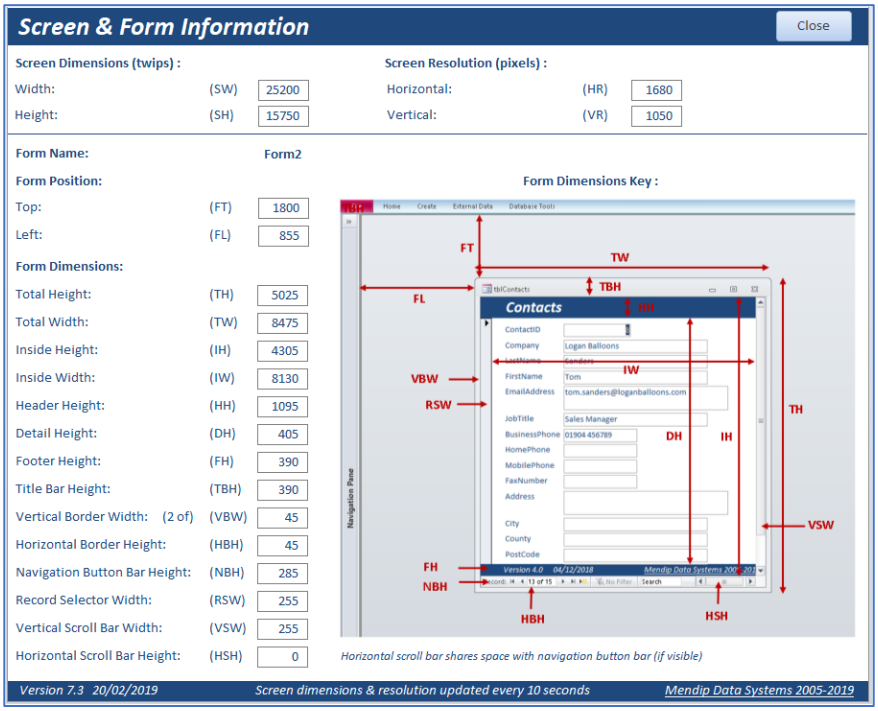
  The issue with ***WizHook*** is that it is a hidden function which has been available for over 20 years but is not documented by Microsoft. In theory it could be removed in a future release, but as it is used in some built-in wizards, I believe that to be highly unlikely

  However, there is very little information about this function online apart from:
  - http://www.mvp-access.es/juanmafan/wizhook/wizhook.htm (in Spanish)
  - ftp://developpez.com/cafeine/access/access_wizhook.pdf

  See the end of this article for additional information about hidden VBA functions such as **WizHook**

## 2. *Form components*

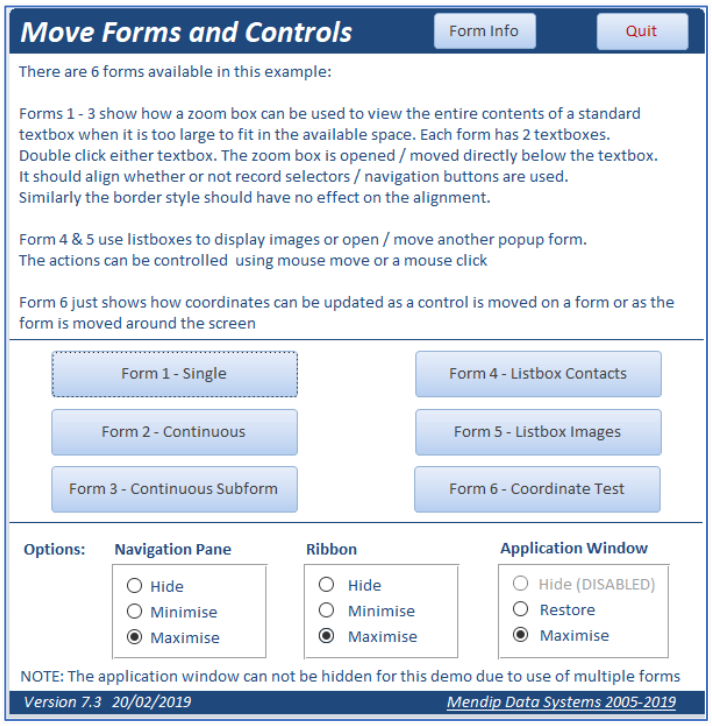
In order to locate an object **precisely on / over** a specific control on a different form, we need to know the size and position of each component of a form – not all items will be present depending on form settings.
The application calculates ALL of these items for use as required



## 3. *Using the example application*

The example application includes an **Images folder**
For the purposes of this example, this needs to be a subfolder of the example app

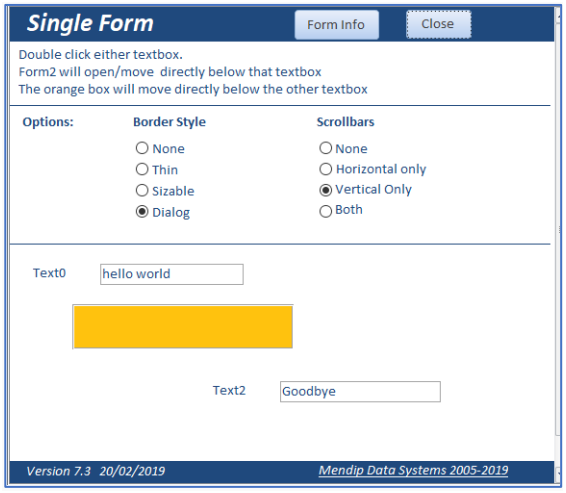
The size of the navigation pane, ribbon and application window can all be controlled from the startup form.

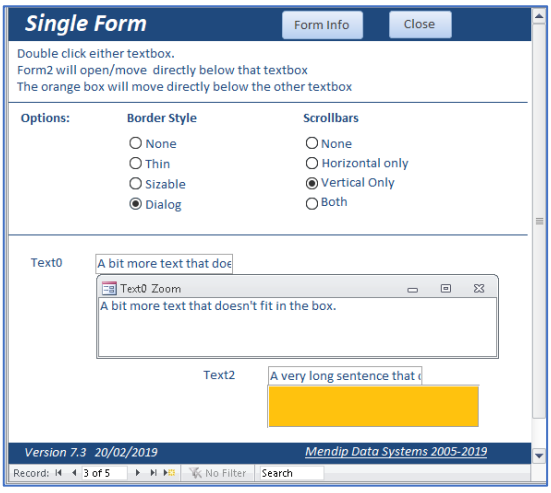


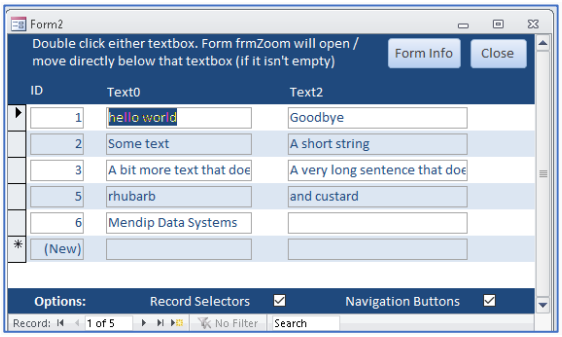

There are 6 test forms available:

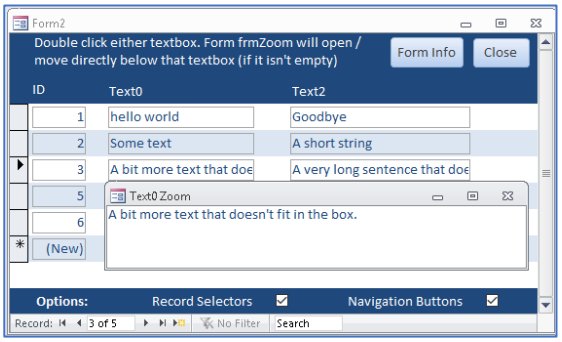
**Forms 1 - 3 (Single / Continuous / Continuous Subform)**
Each of these is designed show how a zoom box can be used to view the entire contents of a standard textbox when it is too large to fit in the available space.

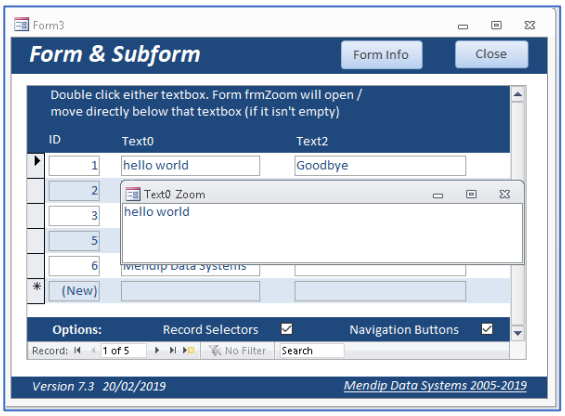
Each form has 2 textboxes and several different options that can be applied
**Double click** either textbox. The **zoom box** is opened / moved directly below the textbox.

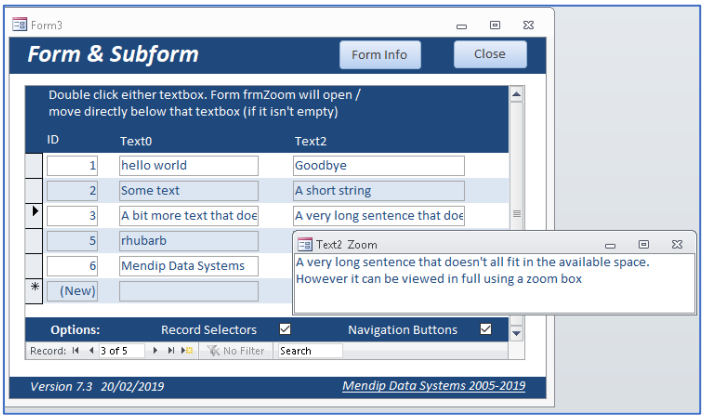





The zoom box should align closely whether or not record selectors / navigation buttons / scrollbars are used. Similarly, the border style should have no effect on the alignment.

Typical code (this is taken from Form2)

```
Private Sub Text0_DblClick(Cancel As Integer)

  'close zoom form if open
  If CurrentProject.AllForms("frmZoom").IsLoaded = True Then DoCmd.Close acForm, "frmZoom"

  strText = Nz(Me.Text0, "")
  strCaption = "Text0 "

  'check record containing text has been clicked
  If Nz(Me.RecNum, "") <> "" And strText <> "" Then
      intLeft = Me.WindowLeft + Me.Text0.Left + intRecSelWidth

      'check if subform
      If IsSubform Then
          intBase = intTitleBarHeight + intHeightHeader + Me.WindowTop + Me.Text0.Top + Me.Text0.Height _
              + (Me.RecNum - 1) * Me.Detail.Height - intNavBarHeight - intBorderHeight
      Else
          intBase = intTitleBarHeight + intHeightHeader + Me.WindowTop + Me.Text0.Top + Me.Text0.Height _
              + (Me.RecNum - 1) * Me.Detail.Height
      End If

      'open / move the form
      DoCmd.OpenForm "frmZoom"
      Forms!frmZoom.Move intLeft, intBase
  End If

End Sub
```

**Forms 4 & 5 - Listboxes**

The listbox selection opens / moves another popup form or displays an image for the selected/highlighted record. The actions can be controlled using mouse move or a mouse click

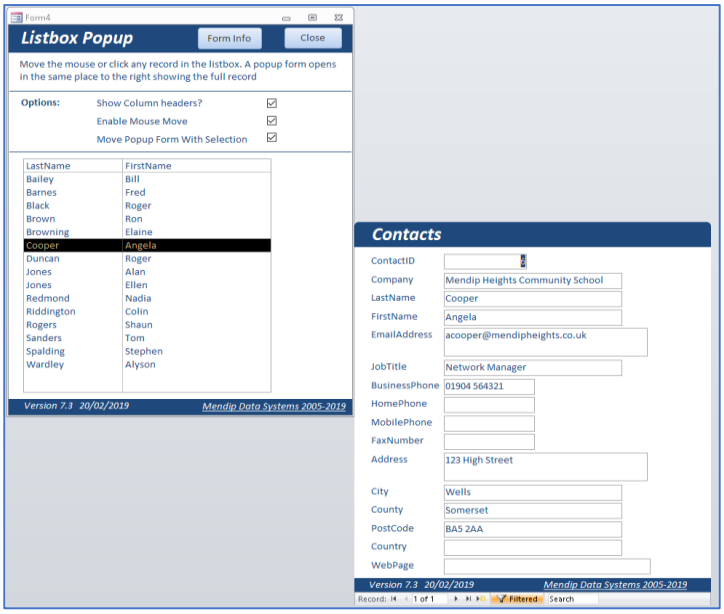
As stated earlier in this article, **records are NOT selected when moving the mouse over the listbox**

Instead, code is used to determine the listbox position based on the calculated height of each listbox row and the mouse cursor position. The listbox row height depends on several things including font name, point size and the 1 pixel (15 twips) space left between each row for legibility.

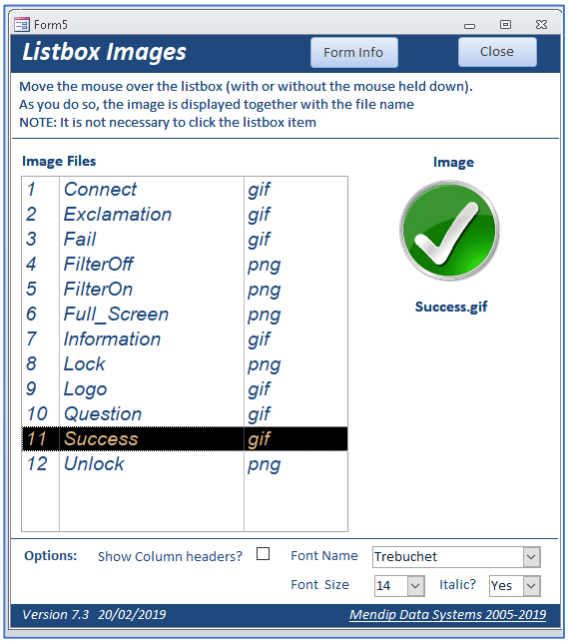
To complicate matters, the first row is 45 twips (3 pixels) taller than all following rows.
That happens whether or not column headers are displayed!

That information is used to ***highlight*** the record under the cursor so the data in the listbox record can be 'read' just as if it had been ***selected by clicking***

Options – mouse move code can be enabled / disabled
Listbox options – column headers on/off ; change font name and font size, normal or italic style







In both forms, the height of each listbox row is calculated using code like this:

```
Private Function GetListboxRowHeight()
   'Wizhook converts row height perfectly
   WizHook.Key = 51488399
   Dim lx As Long, ly As Long 'width & height of character string
   Dim LBRH As Long  'LBRH = listbox row height in twips

   With Me.lstContacts 'listbox name
      If WizHook.TwipsFromFont(.FontName, .FontSize, .FontWeight, .FontItalic, .FontUnderline, 0, _
          "ABCghj", 0, lx, ly) = True Then
              LBRH = ly + 15        'font height +15 twips (1px space between rows)
      End If
   End With

End Function
```

This is used in the ***listbox mouse move*** code to determine the 'current' record for highlighting / 'reading'. For example:

```
Private Sub lstImages_MouseMove(Button As Integer, Shift As Integer, x As Single, y As Single)
   'get record in listbox by moving over record
   'LBRH =listbox row height - calculated in GetListboxRowHeight procedure

    If LBRH = 0 Then Exit Sub
    Screen.MousePointer = 1 'arrow- helps prevent flicker

    intColumnHeads = Me.lstImages.ColumnHeads  'are column headers visible?
    '-1 if true, 0 if false so subtracting it adds 1 if headers shown
    'deduct 45 to allow for larger top row
    lstPos = ((y - 45) \ LBRH) + 1 + intColumnHeads

    If lstPos <> OldlstPos Then 'cursor has moved
      LC = Me.lstImages.ListCount + intColumnHeads '-1 to allow for header
      Me.lstImages.Selected(lstPos - 1 - intColumnHeads) = True 'highlight on mouse move

      'get image path
      strPath = Nz(DLookup("FileName", "tblImages", "ID=" & lstPos), "") & "." & _
                Nz(DLookup("FileType", "tblImages", "ID=" & lstPos), "")

      If strPath <> "." Then
         Me.lblFileName.Caption = strPath
         strPath = CurrentProject.Path & "\Images\" & strPath
         Me.Image1.Picture = strPath
      End If

       'show image if in list
       If lstPos > 0 And lstPos <= LC Then
          Me.lblImage.Visible = True
          Me.Image1.Visible = True
         Me.lblFileName.Visible = True
       Else
          Me.lblImage.Visible = False
          Me.Image1.Visible = False
          Me.lblFileName.Visible = False

          'deselect all records if move beyond end of list
          For N = 1 To Me.lstImages.ListCount
              Me.lstImages.Selected(N) = False
          Next
```

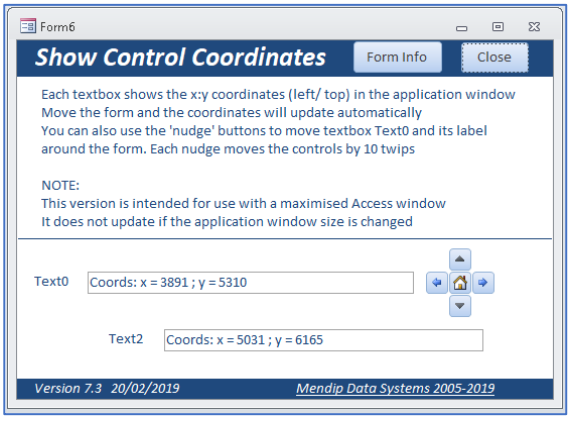
```
    End If
    OldlstPos = lstPos
  End If

  Screen.MousePointer = 0 'reset to default
End Sub
```

**Form 6 - coordinate display**

This shows how coordinates can be updated as a control is moved on a form (using **'nudge' buttons**) or as the form is moved around the screen

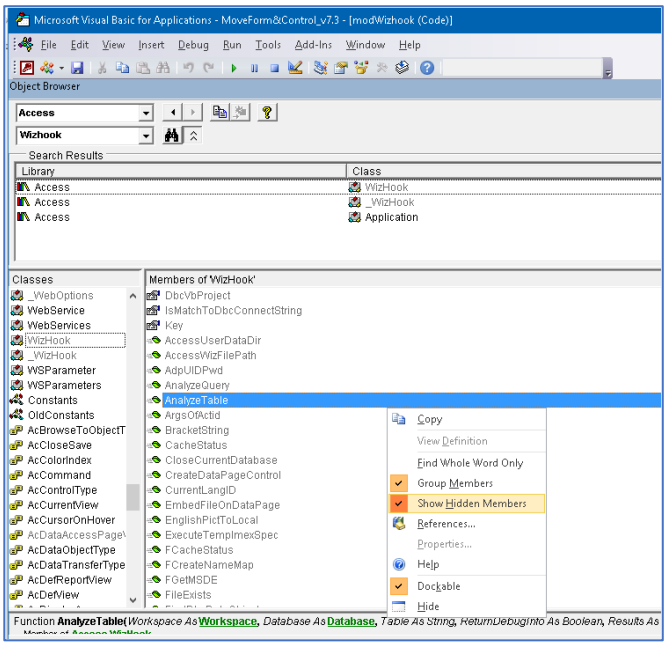
Each **'nudge'** moves both textbox and label by 10 ***twips*** in the direction of the arrow.
The **'home'** button restores the original position




## 4. *Using WizHook and other hidden VBA functions*

Access contains many built-in **hidden functions** - most are undocumented and its always possible that they could be removed when new versions are added. Over the years, I have used a number of these hidden members including ***LoadFromText, SaveAsText, Wizhoo***k and others.
All those I've tried are definitely functional and indeed useful.

To view **hidden functions** in the VBE right click in the object browser and select **Show Hidden Members**
NOTE: You can use these functions even when they are hidden



The screenshot shows some of the members of the hidden **Wizhook** function.
There are many more as you will see if you check for yourself
I've tried several of them and found some very useful features.
However, I've no idea what a few of them do ....YET! Give me enough time though ....!

**Wizhook** has one additional feature that is AFAIK unique.
You MUST supply the **Wizhook** key in your code or it won't work

Code:

```
WizHook.Key = 51488399
```

Many thanks to **skrol** for alerting me to that key value a couple of years ago.
Skrol is the author of the excellent free Access add-in, **V-Tools** http://www.skrol29.com/us/vtools.php
The V-Tools deep search feature is particularly useful

5. ***Current and future developments***

I hope this example application will prove useful to others

I have been successfully using the ***movable zoom box form*** for a few years with several of my applications
I also have a few ideas for deploying the ***listbox mouse move highlight & 'select'*** code in real world applications of my own.

I would be very interested in ***user feedback*** about how this code can be applied in other Access applications


***6. Acknowledgements:***

I am extremely grateful for the valuable assistance provided by the following:

- ***Stephens Lebans*** – various conversion functions partly based on the ***GetSystemMetrics API***
- ***AccessForums.net*** member ***Ajax (Chris Arnold)*** for various improvements to prevent ***screen flicker*** with the ***mouse move*** code used in the listbox example forms 4 & 5
- ***AccessForums.net*** member ***daolix*** for alerting me to the use of the ***WizHook*** function for this example
- ***Skrol*** for providing the ***Wizhook*** key needed to use the function