

PREFACE

This document is a compilation of frequently asked questions and their answers about Visual Basic for Windows and Visual Basic for Applications which have been gathered from posts to the comp.lang.basic.visual newsgroup. Although efforts have been made to find obvious errors, there is no guarantee that the information in this document is error-free. Neither the FAQ maintainer nor anyone else associated with this document assume ANY liability for the content or use of this document. If you find any errors, please report them to the address given below.

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Most FAQs (including this one) are available at the anonymous ftp archive site "rtfm.mit.edu". All parts of the VB FAQ may be found in the directory "pub/usenet/comp.lang.basic.visual".

You can also have the VB FAQs e-mailed to you by sending a message to "mail-server@rtfm.mit.edu" with ONLY the text **SEND USENET/NEWS.ANSWERS/VISUAL-BASIC-FAQ/*** in the BODY of the message.

As the FAQ maintainer, I don't have time to explore all of the aspects of Visual Basic. I rely on your submissions to improve the quality and inclusiveness of this document. If you have found a VB hint, tip, trick, work-around, etc., please write it up and send it to me!

Jan Steinar Haugland (Jan.Haugland@uib.no), VB/Win FAQ maintainer

Please note that my first language is not English. You can safely ignore all typos, but if you find an error that is so embarrassing you can't help pulling your hair and screaming loud, just send me a note and I'll correct it quietly. OK?

I would like to thank all contributors, and also all those who have given constructive feedback. This FAQ is now widely distributed in the net community.

Special thanks to the following people who have made many and invaluable contributions to the VB/Win FAQ: Kris Nosack (the previous maintainer), Peter Millard, Nic Gibson, Mr. "D" (the anonymous contributor), George Tatge (gat@csn.org), Andy Dingley (dingbat@codesmth.demon.co.uk), and those I may have forgotten (sorry).

Tim Roberts is responsible for the Windows Help File version of the FAQ. If you have any problems with the Help file he can be contacted directly at TJR@AC.DAL.CA.

Your help is GREATLY appreciated!

Does VB/Win make standalone .EXE files?

VB/Win produces .exe files, but they are not standalone. All VB/Win programs must be distributed with the VBRUNx00.DLL file (where x is the major version number). This DLL must accompany all VB/Win programs, but only one such file should reside on every system where VB programs are used.

What is the current version of Visual Basic for Windows?

VB/Win is currently at version 3.0

Where can I get updated VB and other Microsoft files?

Microsoft Software Library (MSL) is accessible from the following services:

- Compu\$erve

GO MSL

Search for <filename.EXE>

- Microsoft Download Service (MSDL)

Dial (206) 936-6735 to connect to MSDL

- Internet (anonymous FTP)

ftp ftp.microsoft.com

Change to the \softlib\mslfiles directory

(There are a LOT of files in this directory! It is not advisable to list all the files unless you have good time.)

Help! I am lost on ftp.microsoft.com.

You no longer have to be! The site have been reorganised, and you'll find the file DIRMAP.TXT in root (or whatever it's called on a 3.5 NT server). Here's the file as I found it (stolen ruthlessly from the server for your convenience):

This file is to help you find your way around ftp.microsoft.com. This file only covers the directory structure two levels deep. If you see a 'kb' directory in a second level directory, it contains all of the information regarding that second level directory. For example, the /developr/win32dk directory has a kb directory in it. This kb directory contains all of the articles for any 32 bit development kit.

<u>Root Directory</u>	<u>Sub Directory</u>	<u>Contents</u>
ADVSYS		Advanced Systems, Networks,Mail
	LANMAN	LanMan & other networks
	MAIL	Mail and Schedule+
	MSCLIENT	Microsoft Networking Client
	SQL_ODBC	SQL and ODBC
	WINNT	Windows NT
	WINSOCK	Windows Sockets information
DESKAPPS		Desktop Applications
	ACCESS	Access
	DOSWORD	Word for MS-DOS
	EXCEL	Excel
	GAMES	Entertainment Packs, Flight Sim, etc.
	HOMEAPPS	Home applications (Fine Artist, Creative Writer)
	MISCAPPS	Other applications
	MMAPPS	Multimedia Titles
	OFFICE	Microsoft Office
	POWERPT	PowerPoint
	PROJECT	Project
	PUBLISHER	Publisher
	WORD	Word for Windows & Macintosh
	WRKS_MNY	Works and Money
DEVELOPR		Developer Tools and Information
	BASIC	Quick Basic & other Basics
	DEVCAST	DevCast information
	DEVUTIL	MS Test, Delta, EXEMOD, EXEPACK, & LIB Utility
	DRG	Developer Relations Group
	FORTTRAN	Fortran and Fortran PowerStation
	FOX	FoxPro and FoxBase

	MAPI	Messaging API information
	MASM	Macro Assembler
	MSDN	Microsoft Developer Network
	MSJ	Microsoft Systems Journal
	OLE	OLE
	TAPI	Telephony API information
	VB	Visual Basic
	VISUAL_C	Visual C++, MFC, & other C products
	WIN_DK	Windows SDK, DKs & At Work
	WIN32DK	32 bit Development Kits
MSEDCERT		Microsoft Education and Certification
	EDUCATIO	Microsoft Education information
	CERTIFIC	Microsoft Certified Professional info
MSFT		Microsoft shareholder information
	ANNREPT	Microsoft Annual Report
	BACKGRND	Background information on Microsoft
	PRESSREL	Microsoft Press Releases
	SEC	Recent filings with the Securities and Exchange Commission
SOFTLIB		Instructions & index for software library
	MSLFILES	Software library files (> 1500 files)
PEROPSYS		Personal Operating Systems and Hardware
	HARDWARE	Mouse & other Hardware
	MSDOS	MS-DOS
	WINDOWS	Windows (all versions)
	WIN_NEWS	Information on Windows "Chicago"
TECHNET		Information on TechNet
	SERVDIR	Microsoft Services Directory

NOTE: Directory and file names at ftp.microsoft.com are NOT case sensitive.

Thanks to Richard Mason (richard@whitney.demon.co.uk) for the map he made for us before this long overdue reorganisation, and thanks for bringing this to my attention.

Where can I get good up-to-date information about VB?

If you do any VB programming at all, you really should get the latest copy of the Microsoft Knowledge Base from one of the sources listed above! The filename is VBKB.EXE or VBKB_FT.EXE for the version with full text searching. The Knowledge Base is a Windows help formatted document that is updated almost monthly. (Beware: The files are huge!)

The EXE files on ftp.microsoft.com (and other places) are simple self-extracting files. They don't do any automatic updating of your system, just dump the file(s) inside them in the current directory on your disk, uncompressed and ready for use. Just replace the old files on your system with the new files (same name, usually).

This FAQ (ahem) is a pretty good source as a digest of many of the VB issues that are discussed in the comp.lang.basic.visual newsgroup, but as such the information contained in this FAQ may not have been thoroughly tested or verified.

For easier access to and use of this FAQ document, get the Windows Help file format FAQ doc by anonymous ftp to quasar.sba.dal.ca and look under /www/hlp. The .HLP version is made by Tim Roberts (TJR@SBACOO.P.SBA.DAL.CA). This is HIGHLY RECOMMENDED.

Dave McCarter puts out a nice Windows help formatted document called "Visual Basic Tips and Tricks". A good resource with information that isn't found in the Knowledge Base. It can be found by anonymous ftp to ftp.cica.indiana.edu /pub/pc/win3/programr/vbasic/ as VBTIPS??.ZIP, where '??' is the version number (yes, get the one with the highest number).

There is presently an effort to put together a VB code library so that VB users can share their best - and trickiest - programming work. The code library project is being spear headed by Hein Ragas who has managed to get a directory on CICA for code snippets to be deposited. Stayed tuned to comp.lang.basic.visual for more information.

There's a VISBAS-L mailing list for Visual Basic. You can subscribe to this mailing list by sending an email to

LISTSERV@tamvm1.tamu.edu

Place the following text in the *body* of the message (no, not the subject line):

SUB VISBAS-L Real Name

Where Real Name is just that, *your full real name* not your email address. Note that the traffic on this list may overflow your mailbox if you have a limited mail buffer. Expect around 40-50 messages every weekday, a bit less during weekends. Also, to unsubscribe, do as above but with "UNSUB" in the body of the message to the LISTSERV address, *not* to the VISBAS-L list address itself (Believe it or not, we usually receive 2-3 sub/unsub mails every day on the list, and we're really fed up!) Also, this mail server was split and a new list called VBDATA-L was made for Vb database (Jet) related topics. Same procedure for registering (SUB VBDATA-L Real Name).

Sorry, I know no mailservers or other Internet resources dedicated to VBA specifically. Send me any information you may have, and I'll bring it on.

There are several Usenet newsgroups dedicated to MS Windows programming and use. There's recently been a major group creation process. Those groups that may be of special interest to VB programmers are marked with *:

comp.os.ms-windows.misc
comp.os.ms-windows.programmer.misc
comp.binaries.ms-windows
comp.os.ms-windows.advocacy

comp.os.ms-windows.announce
comp.os.ms-windows.apps
comp.os.ms-windows.nt.misc
comp.os.ms-windows.nt.setup
comp.os.ms-windows.programmer.tools*
comp.os.ms-windows.programmer.win32
comp.os.ms-windows.setup*
comp.os.ms-windows.programmer.winhelp*
comp.os.ms-windows.programmer.networks
comp.os.ms-windows.programmer.graphics
comp.os.ms-windows.programmer.controls*

The latest groups have been added to split the enormous traffic on the *.misc groups down in manageable chunks. However, the second group (.programmer.misc) contains lots of interesting info (mostly C related), if you have the time to read it all!

Also note comp.lang.pascal which is a very good newsgroup for Pascal, including Borland Pascal and Turbo Pascal for Windows.

Please don't use this guide to find out where you should crosspost VB questions. Check the charter for each group before posting to it. If you are sure that your crosspost is legitimate, please note the crossposting in the text.

NOTE: PLEASE don't post VB stuff to comp.lang.visual. This group has *nothing* to do with Visual Basic, and the academics discussing "real" visual programming there are very, very annoyed at what they call "quasi-visual" stuff and postings about those languages to their group.

If you have a Compu\$erve account, you will find a forum for Visual Basic there, including some support from Microsoft:

MS BASIC Forum (GO MSBASIC)

Message Sections Available:

- 1 Forum News/Info
- 2 Setup Wizard/Kit
- 3 Data Access Objects
- 4 The Data Control
- 5 Programming Issues
- 6 ODBC Connectivity
- 7 SQL Queries
- 8 ProEdition Controls
- 9 Calling API's/DLL's
- 10 Using OLE/DDE
- 11 MSCOMM control
- 12 MCI/MAPI controls
- 13 DOS Visual Basic
- 14 DOS and Mac Basic
- 15 Suggestions/Mktg.

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- 8 ProEdition Controls
- 9 Calling API's/DLL's
- 10 VBWIN-ODBC/Database
- 11 MSCOMM control
- 12 MCI/MAPI controls
- 13 DOS Visual Basic
- 14 DOS and Mac Basic
- 15 Suggestions/Mktg.

16 CDK
17 3rd Party Products

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There are magazines dedicated to VB. The best known is Fawcett Technical Publications' _Visual Basic Programmer's Journal_ (VSPJ). Phone 800-848-5523 (for US credit card orders) or 303-541-0610 (int'l and US other orders), Email 74003.224@compuserve.com to Shirley Modric for subscription info. Address is 280 Second Street, Suite 200, Los Altos, CA 94022-3603 USA.

From Randy Coates (rcoates@telarama.lm.com):

I currently subscribe to "Inside Visual BASIC for Windows" from the Cobb Group. Although it is a helpful monthly paper (about 14 pages per publication), I find it to be overpriced when compared to VB Programmers Journal. Here is the information anyway: Domestic \$59/yr (\$7.00 each); Outside US \$79/yr (\$8.50 each)

Phone: Toll Free: 800-223-8720), Local: 502-491-1900, Customer Relations Fax: 502-491-8050, Editorial Department Fax: 502-491-4200. Address: _Inside Visual BASIC for Windows_, 9420 Bunsen Parkway, Suite 300, Louisville, KY 40220.

(Note: for completeness other VB magazines should be listed, and I would like to receive info on those!)

Are there any examples of commercial applications built using Visual Basic?

Profit by Microsoft was written mostly in Visual Basic. In fact, Profit was one of three programs selected as PC Magazine's Editor's Choice among Windows small business accounting packages.

Microsoft uses VB extensively for smaller utilities. 3 of the small apps in Windows and Windows for Workgroups Resource Toolkits are written in VB. Also, if you have the Microsoft Bookshelf CD-ROM, you will notice that the MVOPTION.EXE program, which is an "options" program for MS Viewer, is created in VB.

Note: The existence of VBX files in a package doesn't necessarily mean that it was written in VB. The most popular C++ compilers also support VBXes.

What's the difference between MODAL and MODELESS forms?

MODAL forms are forms which require user input before any other actions can be taken place. In other words, a modal form has exclusive focus until it is dismissed. When showing a modal form, the program pauses at the SHOW command until the modal form is either hidden or unloaded. The internal MsgBox and InputBox forms are examples of modal forms. To show a form modally, use the syntax:

```
MyForm.SHOW 1
```

MODELESS forms are those which are shown but do not require immediate user input. MDI child forms are always modeless. To show a form modeless, use the syntax:

```
MyForm.SHOW
```

When/Why should I use Option Explicit?

Option Explicit forces you to declare all variables before using them. Opinions vary greatly on this subject. The main reason to use the OPTION EXPLICIT statement at the top of all modules is to minimize the amount of bugs introduced into your code by misspelling a variable name. Most variants of BASIC (including VB) have the capability to create variables 'on the fly' (without any declarations). This capability can be a double edged sword.

At the minimum, some suggest using the DEFINT A-Z statement in leu of OPTION EXPLICIT. This statement will cause any variables which are created on the fly to be created as integers as opposed to variant (VB 3.0) or single precision (VB 1.0 and 2.0). (Integers take up less memory).

The OPTION EXPLICIT statement causes VB to 'disable' its ability to create variables on the fly. Thus, all variables must be declared using a DIM or REDIM statement. All variables not declared will cause an error when the OPTION EXPLICIT statement is used. This will eliminate bugs caused by a misspelled variable. The option works module-wide, so you can have some modules with and some without this option in your project.

Why does everybody say I should save in TEXT not BINARY?

Actually, saving in binary mode is a bit faster, so why do we recommend you to save in text?

If you save the source and the project as text, it becomes ASCII (or really, ANSI) code that you can edit with any text editor or (if you are careful when you save) word processor. If you save in binary, only the VB development environment, current or later versions, will understand the code. The Setup Wizard can not scan binary projects. Also, source documenters and other programming tools usually require text mode. If you use text, you can use a simple text editor (ie. notepad) to cut and paste code from other source/form modules into your current project. Some 'tricks' (like making an array of 1 control into a single non-array control again) is easily done with an editor but not that easy in the environment. If you want to print your project to paper the file|print option in the VB environment is often not good enough; you may want to import the text files into your word processor. And, finally, if something goes wrong (only one byte is changed!) you may be out of luck in binary mode. In text mode you will more easily be able to fix it.

Is the Variant type slower than using other variable types?

Generally, yes, if we are talking numeric variable types. The Variant type also increases memory overhead. To test the speed difference, try the following piece of code in something like a button_click event and keep the debug window on the screen:

```
Dim Va As Variant
Dim In As Integer
T1! = Timer
For i% = 1 To 32766
    Va = i%
Next i%
T2! = Timer
Debug.Print "With variant: "; Format$((T2! - T1!), "0.0000")
T1! = Timer
For i% = 1 To 32766
    In = i%
Next i%
T2! = Timer
Debug.Print "With integer: "; Format$((T2! - T1!), "0.0000")
```

This test shows (on our test system) that integers are ~60% faster! However, for strings there where no real difference, or in some instances, variants were faster than strings for routines with heavy conversion usage. For the best result in your application, test your routines directly.

How do I make a text box not beep but do something else when I hit the Enter key?

Put "something else" in your `_KeyPress` event, depending on what you really want. This code example makes *nothing* happen, for an extended period of time:

```
Sub Text1_KeyPress (KeyAscii As Integer)
    If KeyAscii = 13 Then '13 is Key_Return
        KeyAscii = 0
    End If
End Sub
```

This might not be a very nice thing to do, since your users usually have some intention when they press Enter. Often they will want to jump to the next control, like the Tab key does. To have the Enter key emulate the Tab key action, you will need to add the line `'SendKeys "{tab}"` above `'KeyAscii=0` in the example above (Yes, I thought `KeyAscii=9` works but it doesn't! Tab is obviously handled by Windows on a lower level).

By the way, you'll also find this in the Microsoft VB Knowledge Base (see KB Q78305 and Q85562).

Note: If `MultiLine=True` you will *not* want to disable the normal behaviour of the Enter key.

How do I get the Tab key to be treated like a normal character?

You must set TabStop = False for ALL controls on the active form. Then you will be able to insert "tab" (chr 9) characters in controls like the text box.

If you feel you need the Tab key to behave "normal" (ie. jump to next control) outside this specific control, it is trivial to emulate its functionality in code:

```
Sub Command1_KeyDown (KeyCode As Integer, Shift As Integer)
  If KeyCode = 9 Then
    If Shift = 0 Then
      Command2.SetFocus 'Tab=Next control
    ElseIf Shift = 1 Then
      Command3.SetFocus 'Shift-Tab=Prev.ctrl.
    End If
  End If
End Sub
```

...etc.

How do I implement an incremental search in list/dir/combo/file boxes?

This is your lucky day. Dan Champagne (Dan_Champagne@dell.com) made some VB code (no DLLs are necessary!) which easily provides this feature for your applications:

```
'Code by Dan Champagne, '4/18/94

'This code can be used to do an incremental search in either a
'list box, dir, combo, or a file box. The following code is set
'for a file box called FILE1. To make it work with a list box, or
'a file box with a different name, change all occurrences of FILE1
'with whatever you or VB has named your list, combo, dir, or file box.
'There are two places where you will need to change these. They are
'on the last couple of lines in the KeyPress code.
'Also, thanks to John Tarr for helping debug the code.

'In a .BAS file, add the following:
'searchme$ is a global variable that will keep track of what the
'user has typed so far.

Global searchme$

'The following needs to be on one line.

Declare Function SendMessageBystring& Lib "User" ALIAS "Send Message" (ByVal
hWnd%, ByVal wParam%, ByVal lParam%)

Global Const WM_USER = &H400
Global Const LB_SELECTSTRING = (WM_USER + 13)
Global Const LB_FINDSTRING = (WM_USER + 16)

'In File1 under keydown, add the following:
'This checks if the user has pressed the up or down arrow.
'If they have, reset searchme$ to "".

If KeyCode = 40 Or KeyCode = 38 Then
    searchme$ = ""
End If

'In File1 under lostfocus, pathchange, patternchange, and click add:
'If the user has done any of the above, reset the searchme$
'string.
searchme$ = ""

'In File1 under keypress add:
Dim result&
```

```

Select Case KeyAscii
  Case 8      Backspace
    If searchme$ <> "" Then
      searchme$ = Left$(searchme$, Len(searchme$) - 1)
    Else
      File1.ListIndex = 0
    End If
    KeyAscii = 0
    Exit Sub

  Case 27    Escape
    searchme$ = ""
    KeyAscii = 0
    Exit Sub

  Case 13    Enter
    searchme$ = ""
    KeyAscii = 0
    Exit Sub

    Case Asc("a") To Asc("z"), Asc("A") To Asc("Z"), Asc("'"), Asc("."),
Asc(" "), Asc("0") To Asc("9")
      searchme$ = searchme$ & Chr$(KeyAscii)
      KeyAscii = 0

End Select

result& = SendMessageBystring(FILE.hWnd, LB_FINDSTRING, 0, searchme$)

If result& = -1 Then
  searchme$ = Left$(searchme$, Len(searchme$) - 1)
Else
  result& = SendMessageBystring(FILE1.hWnd, LB_SELECTSTRING,-1, searchme$)
End If

```

How do I make an animated icon for my program?

For an example on how you change the icon for your application as it is displayed when it is minimized, see the example REDTOP in the \samples\picclip directory for VB/Win 3 Pro. This demonstrates a fancy animated icon.

What is passing by reference?

Arguments are either passed by reference or by value. When they are passed by value, they cannot be changed by the procedure or function they are passed to. They *can* be altered when passed by reference, since passing by reference is just passing the address.

Note that procedures are less strict about variable types when you use BYVAL. If you declare that your Sub takes a Variant, VB takes that seriously and gives a nasty "mismatch error" if you try to pass ie. a string to it. Make it ByVal (at the cost of some speed) and your sub will be more tolerant.

Also note the following nasty trap: Arguments are passed by reference unless enclosed by parentheses or declared using the ByVal keyword. [VBWin Language Ref., p. 55]

I get a "file not found" error on the IIF function when I distribute by program. Uh?

There's a documentation error, since the manual does not tell you that the IIF function requires the file MSAFINX.DLL to be distributed with your application. No, IIF is not financial (I should know, I study finance right now, or at least I should be doing that ;-]).

Is there any way to pass a variable to a form apart from using global variables?

The standard workaround is to put an invisible text box (or caption or any other control that suits your use.) on the target form and access it by `Form.textbox = "value"`. Then you can use the `Change` event of that control to do anything you want in that form. Also, check out the `.Tag` property which is a "what-you-want" property where you can hook any string you want onto a control. This property can also be accessed from other modules.

[Dave Mitton (mitton@dave.enet.dec.com)]

How should dates be implemented so they work with other language and country formats?

If you use ie. MM/DD/YY format dates in a program, you will get either a runtime-error (ie. month>12) or the wrong date (ie. March 12 instead of December 3) when your program is used in Europe. And vice versa, of course. Even Microsoft's own example programs (like the MAPI sample) make this stupid mistake and fail miserably. Use the Format command to make sure you get the date you want. For example:

```
strTodaysDate = Format[$](Now, "Short Date")
```

As a side note, Microsoft has taken much heat on the newsgroup for VB's bad support for internationalization! Just try to make a date literal in source code that works everywhere as a little exercise. Answer elsewhere in this document. No prizes :-)

Can a VB application be an OLE server?

No. You'll have to use an external DLL/VBX. If you see any examples, please tell the newsgroup.

How do I dial a phone number without using the MSCOMM VBX?

The MSCOMM VBX that comes with VB/Pro is great for creating communication programs, but it's overkill for dialing a phone number. Try the following code:

```
PhoneNumber$ = "(123)456-7890"  
Open "COM2" For Output As #1 'or COM1  
Print #1, "ATDT" & PhoneNumber$ & Chr$(13)  
Close #1
```

Ian Storrs <exuian@exu.ericsson.se> informed me that he had experienced problems with this when the VB program was run from a network drive. A file named "COM1" was created on the disk! This trick is probably not a good idea for bigger applications, but it's nice for small personal utilities.

I have [several] megabytes of memory. Why do I get an "out of memory" error?

Unfortunately, Microsoft has been more famous for memory barriers than anything else. This is a late descendant of the infamous 640K barrier that has been plaguing us for years. Although Windows allows the user to access several megabytes of memory, it uses two limited (64K) memory areas called User Heap and GDI Heap for some specific data structures. Go to the Help|About box in Program Manager to see the percentage of free resources in the *most* exhausted heap. If these areas are exhausted, you are out of luck. VB programs are unfortunately rather greedy on these structures. Windows 4 is supposed to free us from this limitation...

Note that every visible control (i.e. every button) is a window to Windows. Every new control takes up some bytes in the precious User heap.

Also, there is another way to run out of memory in Windows, not related to VB. Windows requires free Upper Memory Area (UMA, also called Upper Memory Blocks, not to be confused with High RAM, which is the first 64K of extended memory) to do certain tasks. If you use QEMM or DOS 6+ MemMaker and you have many device drivers (network, etc.) this area may have been filled up before you launch Windows. You will then be unable to start applications, even though you have plenty of free RAM. The problem can be solved with careful memory setup, but this is far beyond the scope of this FAQ.

On a completely unrelated problem: When you run a program with an outline control with some ATI graphics cards, it may crash with just that error message. (see Knowledge Base Q100194 PRB: "Some ATI Video Drivers Hang When Using MSOUTLIN.VBX")

How do I mimic a toggle button?

The only "fix" we know for this problem is to use a picture or image control to mimic the action of a button or button3d control. You need two bitmaps, one for buttonup and one for buttotdown (and perhaps one more for inactive state). This is a kluge, we know. Look at the button bar used in the MDINOTE sample program supplied with VB for an example of this.

How do I get my application on top?

To force a form to the front of the screen, do the following command:

```
Form1.ZOrder
```

To make the application *stay* on top, put the Zorder command in a Timer event repeatedly called, say, every 1000 msecs. This makes a "softer" on-top than other methods, and allows the user to make a short peek below the form.

There are two different "Zorder"s of forms in Windows, both implemented internally as linked lists. One is for "normal" windows, the other for real "topmost" windows (like the Clock application which is distributed with MS Windows). The Zorder command above simply moves your window to the top of the "normal" window stack. To make your window truly topmost, use the SetWindowPos API call like this:

```
'Make these declares:
Declare Function SetWindowPos Lib "user" (ByVal h%,ByVal hb%, ByVal x%,
ByVal y%, ByVal cx%, ByVal cy%,ByVal f%) As Integer
Global Const SWP_NOMOVE = 2
Global Const SWP_NOSIZE = 1
Global Const FLAGS = SWP_NOMOVE Or SWP_NOSIZE
Global Const HWND_TOPMOST = -1
Global Const HWND_NOTOPMOST = -2

'To set Form1 as a TopMost form, do the following:
res% = SetWindowPos (Form1.hWnd, HWND_TOPMOST, 0, 0, 0, 0, FLAGS)
'if res%=0, there is an error

'To turn off topmost (make the form act normal again):
res% = SetWindowPos (Form1.hWnd, HWND_NOTOPMOST, 0, 0, 0, 0, FLAGS)
```

Is there a way to break long lines in VB code?

There is unfortunately no line continuation character in VB/Win 3.0. Excel 5 VBA does, however, use Space+Underscore (" _") as a line continuation character, and we hope this will be included in the next version of VB.

There are a few tricks you can use to reduce line length, but unfortunately there is very little to do with DECLARE statements which can get very long.

Print your source in landscape :-/

How do I remove/change the picture property of a control at design time?

Mark the (bitmap) or (icon) text in the property window and press Del or Backspace. "No!" I hear you cry, "It doesn't work". Well, it does if you first select the object from the combo box at the top of the Properties Window, and then immediately afterwards doubleclick (or paint over) the "(bitmap)" text and press Del. Alternatively, just click on another control, then click back to the first control. Now Del works. Who said "bug"?

If you want to paste your picture directly into the VB program by pressing Ctrl-V when you are editing the picture property, you will have to use a similar procedure: select the control, select the property, press Ctrl-V. If you try it again without deselecting the control first (or selecting it from the combo box), it doesn't work.

Is a [foo] VBX/DLL available as shareware/freeware?

Part 4 of the FAQ is Adam Harris' excellent "Shareware Custom Controls List". Please consult this list before you post this question.

The following type of controls are NOT known to be available as sw/pd/fw for Visual Basic, only as commercial toolboxes (If you feel like making any of these for VB and sharing it for a modest fee, you will become very popular!):

- a. ZModem communication control/source
- b. Rich Text Format-control or other mixed font/word processor control (rumours indicate that this will be in the Windows 4 API, and therefor available from VB)
- c. Matrix math

If any of these should be available, please tell us.

How do I make my applications screen-resolution independent?

There are two methods: Either get a custom control that does the job for you, or you write lots of complicated code in the Load and Resize events.

For the first option, check out VideoSoft's \$hareware VSVBX.VBX (download VSVBX.ZIP from Cica or mirrors). It has a will of its own, as you will experience, but it's generally better than trying what is described below.

For the brave (or stupid), try to write "screen resolution-smart code" in the form's Load event. If the form is resizable (normally it should be), you'll have to put some magic into the Resize event as well. There are 4 rules of thumb:

- a. **Do not trust the form's height and width properties.** These measure the entire form, not the client area where your controls are. To see this in action, create a simple applet with the only code being in the resize event which resets a line control from 0,0 to the form's width,height properties. The top left corner is in the client area, the bottom right corner disappears. The API call `GetClientRect` will return the size of the client area in pixels. You can use the screen object's `TwipsPerPixelX` and `TwipsPerPixelY` properties to convert from pixels to twips. If that's not enough, `GetWindowRect` will return the actual size of the entire form, client and non-client areas combined. `GetSystemMetrics` will return individual pieces of things like border width/height, caption height, etc.
- b. **Use the `TextWidth` and `TextHeight` properties.** You can use them off the form if all your controls share the same font, otherwise use them off of the given control. I typically do a `TextWidth("X")` and `TextHeight("X")` to get a value which I use as a margin between controls. I grab these values on startup, and multiply it by 2, 1.5, .75, .5, .25 to get varying margin sizes, depending on how close or far apart I want to space things. If your control has an autosize property, you may want to use it, and then calculate the maximum width of a control in a given "column" of controls on your screen and position all of them accordingly.
- c. **Try not to resize your controls in the resize event.** You will spawn another resize event in the process. Of course, you can use a flag to determine whether the resize event is the original event or the spawned one. Using the load event, and setting the forms borders to fixed minimizes the amount of work you have to do.
- d. **Make sure you use a consistent scale.** I don't even bother with the scale properties, but instead just convert pixels (from API calls) into twips and be done with it. If you do use scale properties, be sure you convert your numbers correctly. I had no end of difficulty when I failed to convert into twips with one number that was used in a series of calculations to position controls. Also be sure all your controls share the same SCALE -- another nasty problem I had before I gave up on them completely. [Thanks to our generous anonymous source "D"]

How do I do Peek and Poke?

VB provides no mechanism for this. There are several 3rd party pkgs. which provide this. Also, this often comes up in regards to the comm ports and you can many times do what you want with the mscomm.vbx.

[George Tatge (gat@csn.org)]

See also the Shareware Custom Controls List FAQ file

Why doesn't "my string" & Chr\$(13) do what I want?

You need to also add a Chr\$(10): "my string" & Chr\$(13) & Chr\$(10) will give you a CR and LF.

[George Tatge (gat@csn.org)]

How do I prevent multiple instances of my program?

In VB 3, the property `App.PrevInstance` is set to `True` if an older instance of the program already exist.

The following piece of code, stolen from MS KB article Q102480, will activate the old instance and then terminate itself:

```
Sub Form_Load ()
    If App.PrevInstance Then
        SaveTitle$ = App.Title
        App.Title = "... duplicate instance."      'Pretty, eh?
        Form1.Caption = "... duplicate instance."
        AppActivate SaveTitle$
        SendKeys "% R", True
    End
End If
End Sub
```

As Robert Knienider(rknenid@email.tuwien.ac.at) informed me, this piece of code WILL NOT work for non-English versions of MS Windows where the word for "Restore" does not have "R" as the underlined word. Replace the "R" in the `SendKeys` line above with "{ENTER}" or "~".

Note that you shouldnt prevent multiple instances of your application unless you have a good reason to do so, since this is a very useful feature in MS Windows. Windows will only load the code and dynamic link code **once**, so it (normally) uses much less memory for the later instances than the first.

How do I implement an accelerator key for a text box?

You want to use a label caption to identify a text box and to act as if it were the text box caption:

Example:

```
&Label1 [text1]
```

How should I do to set the focus to text1, by typing <ALT>L

Make sure that the TabIndex property for the text box is 1 greater than the label's TabIndex. Since a label can't have the focus, the focus will go to the next item in the tab order, which would be the text box.

Here's any easy way to set the TabIndex for a busy form. Select the object that should be last in the tab order and then select the TabIndex property. Press 0 (zero), click on the next to last object, press 0, click on the the next object back, press 0, etc. When you're done, all of the TabIndexes will be in order, because VB increments all of the higher TabIndexes when you put in a lower number.

Many thanks to Jonathan Kinnick and Gary Weinfurther that provided the answer on the FIDO net echo VISUAL_BASIC.

[Tiago Leal (Tiago.Leal@p25.f1.n283.z2.gds.nl)]

How do I tell when an application executed using the SHELL command is finished?

Shell() doesn't really return a task handle, it returns an instance handle. Any documentation that says otherwise is wrong. But never mind that; the answer to your question is to use the API call GetModuleUsage.

```
'Put this in the general declarations of your form/module
Declare Function GetModuleUsage Lib "Kernel" (ByVal hModule As
Integer) As Integer
```

```
'Here's where you shell out to the other program
intHandle = Shell("PROGRAM.EXE")
Do While GetModuleUsage(intHandle) > 0
    DoEvents
Loop
```

[Kenn Nesbitt, Microsoft Consulting Services (kennn@netcom.com)]

How do I access C style strings?

Use the 'Istrlen' and 'Istrcpy' calls found in the Kernel DLL.

How can I change the printer Windows uses in code without using the print common dialog?

You can change the printer the VB 3.0 Printer object is pointing to programmatically (without using the common dialogs). Just use the WriteProfileString API call and rewrite the [WINDOWS], DEVICE entry in the WIN.INI file! VB will instantly use the new printer, when the next Printer.Print command is issued. If you get the old printer string before you rewrite it (GetProfileString API call), you can set it back after using a specific printer. This technique is especially useful, when you want to use a FAX printer driver: Select the FAX driver, send your fax by printing to it and switch back to the normal default printer.

[Hajo Schmidt (hajo@bwl.bwl.th-darmstadt.de)]

It is recommended (and polite, as we're multitasking) to send a WM_WININICHANGE (&H1A) to all windows to tell them of the change. Also, under some circumstances the printer object won't notice that you have changed the default printer unless you do this.

```
Declare Function SendMessage(ByVal hWnd As Integer, ByVal wMsg As Integer, ByVal wParam As Integer, lParam As Any) As Long
Global Const WM_WININICHANGE = &H1A
Global Const HWND_BROADCAST = &HFFFFFF
' Dummy means send to all top windows.

' Send name of changed section as lParam.
lRes = SendMessage(HWND_BROADCAST, WM_WININICHANGE, 0, ByVal
"Windows")
```

[Nic Gibson (nic@skin.demon.co.uk)]

Any tips for speeding up VB?

Who said "code in C"???? ;-)

- a. When SHOWing a form with lots of bound controls, have a blank frame covering everything. Then, in the Form_Activate event, set the Frame.Visible = False. This greatly speeds the display of the form and hides ugly thrashing as the data controls initialize.
[Christopher Biow (biow@cs.umd.edu)]
- b. Try to keep any Global definitions to a minimum. Massive numbers of global variables really seem to slow VB Windows down (besides chewing up memory). In other words, if you've pasted a lot of stuff from the globals.txt file, trim all definitions and variables you don't use in your application.
- c. Keep the total number of controls and forms used to a minimum (you've probably already guessed that).
- d. Keep fancy graphics to a minimum (another one you know).
- e. Try "pre-processing" in the background (using Do_Events). Doesn't really speed anything up, but often there is a lot of "idle" time while the user is selecting menu's, buttons and such - if you can do some calculations, image loading or whatever during this idle time your user perceives the application is faster than it really is.
- f. Hide often-used forms rather than unloading them. Unloading saves memory, but it takes longer to re-load a form than to simply "un-hide" it.
[Tips b to f by Galen Raben (galenr@gr.hp.com)]

The following tip is along the same lines, but with a code sample. They are provided by Andy Dingley (dingbat@codesmith.demon.co.uk):

You're limited by the system as to how quickly you can go from calling frmMyForm.Show to being able to type into the controls, but you can make the form *appear* to display faster. One technique is to keep forms loaded, and just switch their visibility on and off. This is heavy on resource usage, and doesn't help for the first time they're shown.

Most forms have some processing (eg. querying a table to fill a list box) that goes on when they're first opened, and this is what causes the most serious delay. It's possible to display the form, make its controls appear on screen, then do the slow processing before finally making the form "live". As the user can see things happening, the perceived delay is less obvious.

Include the following code in your form:

```
Option Explicit
Dim FirstActivation as integer

Sub Form_Activate
    DoEvents 'Allow the _Load event to be seen on screen
    If FirstActivation Then
        ' Do all the slow loading stuff here
        If FillComboBox <> 0 Then
            Unload Me 'If it all goes horribly wrong, then you
                    'can call Unload from an _Activate event
                    '(Which you can't do from the _Load event)
        End If
        FirstActivation = False
    End If
    Screen.MousePointer = DEFAULT
End Sub
```



```
Sub Form_Load
    FirstActivation = True
End Sub
```

Show the form by using:

```
Screen.MousePointer = HOURGLASS
frmMyForm.Show MODAL
```

Bruce Garrett (bruceg@access2.digex.net) had the following tips from his VBITS 93 notes:

- Polling a control for its properties directly is 10 to 20 times slower than placing the property values you need into variables and testing the value of the variables.
- Swap tuning: Modules are not loaded until used; put related code in the same modules, reduce the number of intermodule calls and keep modules small.
- Binary file I/O is faster than Text/Random.

There was also a lot of discussion about "apparent" speed i.e: how it looks on the screen as opposed to how fast it's chugging internally. It was noted that the cute little flashing menu items and exploding windows in the Mac amounted to a little razzle-dazzle to distract you from how long it took to actually load something and get it on the screen. Keeping all your forms loaded but hidden until needed was suggested. Also the use of progress indicators and a simple quickly loaded and drawn startup form. Also preloading data you expect to need.

How do I speed up control property access?

Instead of using a property in a loop, you will be better off using a normal variable in the loop and then assign the variable once to the property afterwards. Also, when reading a property, you should read it once into a variable instead of using it in a loop.

Sometimes it is not possible to simply put contents of a property into a variable. For example, if you are using a list box or you need to conserve memory. In these cases you can send the WM_SetRedraw message to the control to prevent redrawing. You can typically increase the speed 6-10 times - or even more.

```
'Add the following declares:
Declare Function SendMessage Lib "User" (ByVal hWnd As Integer,
ByVal wParam As Integer, ByVal lParam As Any) As
Long
Const WM_SetRedraw = &HB

'Add this to your code:
Result% = SendMessage(Text1.hWnd, WM_SetRedraw, 0, 0)
'redraw off
'Do your stuff here!
Result% = SendMessage(Text1.hWnd, WM_SetRedraw, 1, 0)
'redraw on
```

This same method applies to list boxes and other controls.

How much gain in performance will I get if I write my number crunching routines in instead of Visual Basic?

Probably the best solution to the number crunching problem is to write the number crunching routines as a custom control or a DLL, and plug it into a VB app. VB interface handling is not significantly slower than, say C++, and most of the wait is associated with Windows.

Some real world experience speaks volumes about this one:

I wrote some time consuming code in VB to solve a combinatorical (does this word exist in English?) problem. The code consists of one main recursive function, which calls itself very often. It took a night to compute a certain problem. I was rather disappointed and then decided to write the central routine in C++. It was a 1:1 transcription. The routine was compiled with the MS C++-Compiler. It took only 22 Minutes for the same problem. Amazing, isn't it? The routine doesn't do any floating point arithmetic, only integer, and handles some arrays. The PC was a 33MHz 486. And the second amazing thing is, that a IBM RS6000 (560)-Risc-machine needed 17 Min for the same code. I was the only one on the machine. I thought it should be much faster. The MS C++ seems to make very fast, optimized code. The optimization was configured to make fast code.

[Christoph Steinbeck (steinbeck@uni-bonn.de)]

How do you make a TEXTBOX read only? Or, how do I prevent the user from changing the text in a TEXTBOX?

There's a lot of ideas on this one. You can grab the `_KeyPress` and `_KeyDown` events and set them to zero. However, the best idea is to use the Windows API `SendMessage` function to tell the control to become read-only:

```
'After making the following declarations...
Global Const WM_USER = &H400
Global Const EM_SETREADONLY = (WM_USER + 31)
Declare Function SendMessage Lib "User" (ByVal hWnd As Integer
ByVal wParam As Integer, ByVal lParam As Any) As
Long

'Then Try:
SendMessage(Text1.hWnd, EM_SETREADONLY, 1, 0)
[Pete Jones (pjones@csi.compuserve.com)]
```

This will still allow the user to copy *from* the text box. If you need to disable this (why?), steal the Ctrl-C in the `_KeyPress` event.

How can I create a VBX?

VBXs (Visual Basic eXtensions) are practically always written in C (Borland C++, but mainly MS VC++). You should refer to the `_Control Development Guide_` (in VB Professional Features Vol. I) and any relevant documentation for your compiler. Followup questions should normally be directed to `comp.os.ms-windows.programmer.*` or `comp.lang.c*`.

There are some example VBX's with C code supplied with VB3 Pro. You'll find them under the directory `[VB]\CDK`.

How do you change the system menu (on the Control-Menu Box)?

You can turn off the minimize and maximize menu options by changing properties, but what if you need to remove the "close" option?

```
'Make the following declares.
Declare Function GetSystemMenu Lib "User" (ByVal hWnd As Integer,
ByVal bRevert As Integer) As Integer
Declare Function RemoveMenu Lib "User" (ByVal hMenu As Integer,
ByVal nPosition As Integer, ByVal wFlags As Integer) As Integer
Global Const MF_BYPOSITION=&H400

'Use the following code to remove the "close" option.
SystemMenu% = GetSystemMenu (hWnd, 0)
Res% = RemoveMenu(SystemMenu%,6, MF_BYPOSITION)
'(also remove the separator line)
Res% = RemoveMenu(SystemMenu%,6, MF_BYPOSITION)
```

Adding menu items to the control menu is more complicated, since you need to respond to the events triggered when the user selects the new options. The newest Message Blaster (msgblast.vbx, see details in beginning of FAQ about how to get files) contains example code.

How do I play MID, WAV or other multimedia files?

Use the MSMCI.VBX, provided with VB/Win Pro 3.0. You can also declare and call the MM-functions manually:

```
Declare Function mciExecute Lib "MMSystem" (ByVal FileName as  
String) As Integer  
  
Sub Form1_Click ()  
    iResult = mciExecute("Play c:\windows\mkmyday.wav")  
End Sub
```

How can I call a 'hidden' DOS program from VB?

If you run a DOS program minimized using the SHELL command, it will never complete. This is because DOS tasks by default are NOT setup to run in the background. The easiest way to get around this is to make a PIF file for the program you need to run with the "Background" option checked. Then SHELL to the PIF file to run the DOS program and it will return control to your VB application when it terminates.

Tip: If you edit or replace the _DEFAULT.PIF file in the Windows directory to allow execution in background, this will apply to all DOS boxes that is not run with it's own .pif!

How do I do drag & drop between applications?

Get the file FMDROP10.ZIP from <ftp.cica.indiana.edu> in the vbasic directory. It is a good VB example of drag & drop. You may also want to get the MSGBLAST VBX (3-64.ZIP at <ftp.microsoft.com> in the MSDN directory) since you will need to have access to Windows messages in order to do drag & drop - unless you get a VBX to do it for you.

Also, the D&DSERVE example from Windows Tech Journal Aug 92 includes a DLL for this purpose. This is available from some ftp sites.

Short glossary for the confused ones :-)

Drag & Drop Client: the form you drop objects to/on

Drag & Drop Server: the form you drag object(s) from

How do I use GetPrivateProfileString to read from INI files?

There's a good example of accessing *.INI files in the Knowledge Base, but here's the basic idea:

```
'You declare these API function as usual:
Declare Function GetPrivateProfileString Lib "Kernel" (ByVal
lpApplicationName As String, ByVal lpKeyName As Any, ByVal
lpDefault As String, ByVal lpReturnedString As String, ByVal
nSize As Integer, ByVal lpFileName As String) As Integer

'Then in your code you do like below:
strIniFile = "WIN.INI"
strSection = "MyProgram"
strKey = "Language"
strDefault = "English"
iLength = 70
strReturn = String$(iLength, " ") 'Pad the string first!
iResult = GetPrivateProfileString(strSection, strKey, strDefault,
strReturn, iLength, strIniFile)
```

WARNING: Be aware that there was an ERROR in the Windows 3.1 API documentation that came with VB. Here's the scoop:

Knowledge Base article Q110826 (DOCERR: GetPrivateProfileString Declaration Incorrect in API) corrects a documentation error for the GetPrivateProfileString function call as described in the Windows version 3.1 API Reference help file that shipped with Microsoft Visual Basic version 3.0 for Windows. The CORRECT declaration is as follows:

```
Declare Function GetPrivateProfileString Lib "Kernel" (ByVal
lpApplicationName As String, ByVal lpKeyName As Any, ByVal
lpDefault As String, ByVal lpReturnedString As String, ByVal
nSize As Integer, ByVal lpFileName As String) As Integer
```

Note that the "ByVal" keyword was omitted from the second parameter in the online reference. This means that the function is passing the second parameter (lpKeyName) by reference. It needs to be passed by value.

The most common problem that occurs when using the incorrect declaration is that when the function is called, it returns a copy of "lpdefault" in the "lpReturnedString" parameter instead of the actual value referenced by KeyName.

How do I implement Undo?

For most controls, you will have to keep track of changes yourself. There's no magic involved, just some coding. However, if you use the standard Text box or Combo box, Windows provides a "free" undo function for you!

```
'Do the following declares:  
Declare Function SendMessage Lib "User" (ByVal hWnd As Integer,  
ByVal wParam As Integer, ByVal lParam As Any) As  
Long  
Global Const WM_USER = &h400  
Global Const EM_UNDO = WM_USER + 23  
  
'And in your Undo Sub do the following:  
UndoResult = SendMessage(myControl.hWnd, EM_UNDO, 0, 0)  
'UndoResult = -1 indicates an error.
```

How do I create a window with a small title bar as in a floating toolbar?

Download the MSGBLAST VBX from <ftp.microsoft.com> (filename "8- 3.ZIP") or (better) from <ftp.cica.indiana.edu>. The example files provide an example of a form with a small title. When you see it, you'll understand why I haven't include a full explanation here!

What is Pseudocode?

VB/Win does not generate machine code like most compilers do. Instead it creates what is called pseudocode (a real misnomer, IMO). A good explanation is given below:

A bit of history: the original P-code was an instruction set for a "virtual Pascal" machine. This came with a portable Pascal compiler written at ETH in Zuerich. The portable compiler produced instructions for this phony machine which had an instruction set ideally suited to the stack and heap management of Pascal. To execute portable Pascal programs, you had two choices: either write an interpreter for P-code, or translate the small set of P-code instructions (there were about 80) into assembler; assemble it; and run it at native speed. Thus "P-code" originally stood for "Portable" or "Pascal" code.

The broader meaning, "pseudo-code" came later. P-code was widely popularized by the UCSD Pascal system, a small workstation that was implemented entirely in P-code and interpreted. It was sold for some years, and one company even re-did the microcode for a PDP-11 microchip to interpret P-code. The original Borland Turbo Pascal had obvious similarities to the UCSD system although it was not interpreted. The dialect was virtually identical.

Today P-code is used extensively in Microsoft apps, for two reasons. First, it is much more compact than native code; so the apps are smaller. Second, having an interpreter at the core of an app makes it much easier to customize and extend. That is why VB is becoming the heart of the MS major apps. It is simply not true that P-code apps run much slower than native apps. The slowdown is determined by the granularity of the interpreted routines. If every little thing is an interpreted op, the slowdown might be as much as 3-to-1 for the 80x86 architecture, or about 2-to-1 for the Motorola 68000 family (which is better suited to writing interpreters).

But in practice, modern P-code systems have large-scale instructions, each of which is executed by a big compiled subroutine. These subs run at native speed, so the overhead of the interpreter is occasional at worst. [Roger E. Ison (r_ison@csn.org)]

It is also possible that since the code may not need recompilation to run on other platforms *iff* the runtime interpreter is first ported, VB applications can become very portable. This depends on Microsoft's long-term plans.

A note on the word "pseudocode": I wrote above that it is a misnomer, and I stand on that. Pseudocode is *really* the pascal-like (mostly) explanation of an algorithm that is intended for human readers, not computers. But since somehow the term pseudocode stuck to the pseudo-machine-code created by VB the word is used here.

Does VB support pointers to functions?

No, it does not. [George Tatge (gat@csn.org)]

How do I program the Novell NetWare API from VB?

Tom Tregilgas (Tom.Tregilgas@InfoB.unisg.ch) had a lot of information on this one. Normally I leave it to the other FAQ parts to list books & how-to-get-info's, but since this topic is very specific and more NetWare than VB I include all the stuff here for your convenience:

If you are interested in seeing how Visual Basic can be used for NetWare programming, obtain the following files from your friendly neighborhood Novell FTP Mirror site.

Mirror sites are (according to ftp.novell.com):

Novell Germany: ftp.novell.de
Netherlands: ftp.rug.nl
United Kingdom: ftp.salford.ac.uk
Logan, Utah: netlab2.usu.edu
New Zealand: tui.lincoln.ac.nz
Tuscaloosa: Alabama, risc.ua.edu
Ottawa, Ontario, CA: novell.nrc.ca
Boston, Mass: bnug.proteon.com

novlib\11\nivb.zip, Netware Interface for Visual Basic
novlib\11\nwtest.zip, NetWare Test for Visual Basic

There are also two Novell App Notes on the subject of using NetWare with Visual Basic (although this is NOT supported by Novell...) which are:

October 92, Interfacing Visual Basic for Windows and NetWare
July 93, A NetWare Interface for Visual Basic

The AppNotes can be obtained by contacting the Novell Research Order Desk, FAX: +1 303 294-0903, Voice 800 377-4136, +1 303 297-2725. Address as follows:

Novell Research Order Desk
1601 Park Avenue West
Denver, CO 80216-5199

AppNotes are \$95/year (\$135 outside US)

Here are a few books which might help you out to figure the calls out:

Windows Development on NetWare Systems, Lori Gauthier and Sue Whitehead (c) 1994, Windcrest, Blue Ridge Summit, PA 17294-0850 (McGraw-Hill) \$34.95 Comes with disk This book also tells you how to "upgrade" to the currently supported SDK calls

NetWare System Interface Technical Overview, Novell (c) 1990,1989 (Addison-Wesley), \$32.95 (describes Novell's C Network Compiler API's)

Visual Basic Programmer's Guide to the Windows API, Daniel Appleman Ziff-Davis Press, 5903 Christie Ave, Emeryville, CA 94608, \$34.95 Comes with disk

It should be mentioned that the APIs included with the NIVB are not current, and for this purpose, you should get the Novell SDK kit. Also, Novell will not support NIVB, but you can sometimes get some help from Compu\$erve, or from others on the Infobahn <g>

Good luck!

p.s. It behooves you to become a member in the PDP (Professional Developer's Program) since

you get the AppNotes (& Bullets!) for...free.

p.p.s. Novell does NOT support the NIVB...

p.p.p.s. Also, no docs come with it. You'll probably need the Client C SDK kit to be able to really use the code.

p.p.p.p.s. To make things even better, the calls in NIVB are fairly old, and not of the Client C SDK kit variety. However, there are books which could help you out, e.g. "NetWare System Interface Technical Overview", by Novell. ISBN:0-201-57027-0, published by Addison-Wesley Publishing co, \$32.95 US, \$42.95 in Canada.

Some Visual Basic 4 rumours

First, we have no special information. This is just rumours, guessing, gossip! But since there are many questions about this on the newsgroup, *and* Microsoft gives these controlled leakages through their beta testers, we bring on some of it (Please, don't start discussing NDA's on this group again!):

a. Two versions: 32-bit and 16-bit Like Visual C++ 1.5, VB 4 will come with compilers for the 16-bit API from Windows 3.1 as well as a real 32-bit compiler (or pseudocompiler) for Windows 4 (Chicago) bundled together.

b. New features will probably be inherited from VBA

i) Line continuation character " _" (space+underscore)

ii) WITH statement, known from Pascal, to save typing and make code cleaner. An example:

```
With Form1
  With Text1
    Bold = true
    FontName = "New Times Roman"
  End With
End With
```

iii) FOR EACH .. NEXT statement allows you to make changes to a group of objects at once better than FOR..NEXT. Object groups are also something you may have to work closer with in VB4.

iv) An OPTIONAL statement allows you to leave some Variant parameters undefined when calling a user-defined sub or function. Also in VBA is an ARRAY function that returns an array from a list supplied as parameters, and a special optional ParamArray optional parameter of Variants.

v) Boolean data type. Integer does the job, but this type can preserve space if Microsoft codes it right.

vi) Byte data type? No, VBA does not support this. We can dream, however.

c. VBX is dead. Long live OCX!

You may not feel for celebrating this either, but the 32 bit VB 4 will not support the old 16-bit VBX'es. The 16-bit version of VB 4 will support them for backwards compatibility, but be aware that OLE 2 and OCX is the way of the future, at least if Microsoft gets it as they want.

What is the Windows API?

The Windows API (Application Program Interface) is a collection of Dynamic-Link Libraries (DLLs) that do most of the common things in Windows. Calls to the Windows API gives you access to routines that do things like drawing menu bars, manipulating bitmaps, playing sound files, and pretty much every other function of Windows.

How do I call a DLL?

Basically, you declare a DLL procedure which you can call in your VB program which in turn passes data to and/or retrieves data from the DLL. You should read the section of the VB manual that talks about calling DLLs ("Chapter 24 Calling Procedures in DLLs" in the VB 3.0 Programmer's Guide). This chapter covers the basics of using the Windows API DLLs and calling DLLs in general. Beyond that you may want to find a good book on this subject since it is too large to cover here (see the Book Listing in the Appendix of the General FAQ - Part 1). Don't be too intimidated! Using DLLs (especially many of the Windows API functions) is quite easy, once you learn how to call them. In fact, many of the newer DLLs include VB-compatible modules!

What about DLL calls that require callbacks?

VB does not support callbacks, but various extensions can help.

Dan Appleman's "Visual Basic Programmer's Guide to the Windows API" comes with a floppy disk which code samples and tools. It also includes a VBX which supports the callbacks which many API calls require. Dan is also founder and president of Desaware which sells more extensive tools, including SpyWorks, for VB developers.

[Walter Hill (whill@netcom.com)]

Tips for calling DLLs (such as the Windows API)

- a. Using the BYVAL keyword is critical. Using it when you're supposed to call by reference and (more common) not using it when you are to give a value to the external function are the single most common mistakes. Wrong calling convention can often result in a General Protection Fault (GPF) or, even worse, corruption of another applications' data.
- b. Check return and parameter types. For return types, a C function declared as "void" means you use a Sub not a Function.
- c. Initialize strings by padding it to the necessary length! If you pass a string that is too short to the API it will happily write past the end of the string and possibly corrupt data.
- d. Use Option Explicit. A typing error that results in a bug in the VB source will occasionally cause a GPF when you call external code.
- e. It's a jungle out there! Check parameter values as there is no type checking outside VB. If you make a mistake, you'll often get a GPF.
- f. Save before you run! You may even need to restart Windows after a GPF, since DLL's often aren't unloaded properly. As a second option you can check out WPS (Windows Process Status) which is distributed with VB/Pro and placed in the CDK directory. This utility allows you to kick out any module (EXE, DLL) from memory (shooting yourself in the foot if you want to. WPS is a nice way to find out what DLLs are actually used, but save your work first!).

Why can't I use an index with my VB accessed database?

There is a mistake in the docs which says you can set the active index for a recordset. You can't. The data control uses the primary key for tables and physical order (I think) for dynasets.

[Nic Gibson (nic@skin.demon.co.uk)]

Why does my compiled VB database app generate an error when it ran just fine in the design environment?

You can thank Microsoft for documenting this topic so poorly. When you compile your VB database application, you must also have an INI file for it which provides the correct pointers to the appropriate database drivers. Therefore, if your application is named "INVOICE.EXE", you will need to have a properly configured "INVOICE.INI" file in your Windows directory. The file, EXTERNAL.TXT, that came with VB should explain all about it.

Is the Access Engine and Visual Basic Pro good enough for database work?

That, of course, depends. Generally the answer is "yes", but you may need some third-party add-on products.

These are the major weaknesses of VBPro's database functions:

- a. Limited data controls: No add, delete or search button; no bound list box or masked edit control and - the worst - no bound grid!
- b. No run-time query builder ("how good is your user in SQL?") or report builder.
- c. No direct advanced control of the Access 1.1 (or 2) Database Engine (ie. security, optimization, etc.).

The good news is that lots of companies are willing to sell you products which address one or more of the above weaknesses.

Also, if you build a database application with advanced database relations, it can be a good idea to build the database itself with Access and the front-end with VB.

How do you avoid the "Invalid use of null" error when reading null values from a database?

If you try to retrieve a null value (empty field) from a database, you will get the error: "Invalid use of Null". Here is one way to get around this problem:

I've worked around this problem with the following code:

```
TextBox.Text = MyTest.Fields("TestFld") & ""
```

This code converts the Null-Value into an empty string.

[Ralf Metzger (rmm@dragon.stgt.sub.org)]

What is "NULL"?

Contrary to popular belief, Null is not nothing. It's even less than nothing. 8^)

The VB documentation describes all the horrors of misunderstanding the infamous NULL. Since people don't read the documentation, we feel like informing that

```
If ThisVarIsNull = NULL then DoSomething
```

will **always** fail, and the DoSomething can't possibly be executed. You **must** use IsNull(ThisVarIsNull) which will return True if the var is Null (phew!).

If you want to find out why someone came to think of this strange value, read some relational database theory.

How can I access a record by record number?

Use a counter or index field and access the record with this.

It is *impossible* to ask a relational database system to give you ie. "field number 3 in record number 10" since by definition a relational database does not have row or column numbers. Databases allowing direct access like that is not even remotely relational.

Access (and therefore, VB) is about as close to a real relational database system as you can get.

Tips for VB database programming:

- a. Use Access and QBE. Once it's "working" (even if the parameters are hardcoded), then open up View.SQL and copy the stuff from the SQL window into your VB code. If you need to insert VB variables, try testing this under Access by using parameters instead. They're then nice & easy to spot when it comes to converting into VB - I always call my parameters "PR_xxxx", so I can just search my VB code for this to find any instances that I've missed.
- b. It never works first time. So put an error handler into your VB code that copies the contents of SQLStr onto the clipboard, should the query fail. Now it's quick & easy to switch back to Access, find a scratch query and paste the erroneous SQL into that. It's *much* easier to debug a SQL query in Access, after the variables have been merged in, than it is to do it blind from VB.
- c. Use carriage returns to break up your SQL. One before each reserved word is sensible. They're not significant in SQL. I assume you're not stupid enough to put them in the middle of field names - unfortunately Debug.Print is!
- d. When merging in the contents of a variable (building a SQL query in a VB string), it should *always* be surrounded by an ampersand and 3 double quotes, or an ampersand and 2 mixed quotes, depending on your local conventions:

```
SQLStr = SQLStr & "WHERE Username <= """" & Username$ """" "
```

or

```
SQLStr = SQLStr & "WHERE Username <= " & Username$ " " "
```

- e. If you're using dates, then it will *always* be one quote, a hash and an ampersand:

```
SQLStr = SQLStr & "WHERE Start_Date <= #" & Format$(CutOffDate,"Long Date") & "# "
```

- f. Another tip with dates is to format them with the long date format, not the short date. This is then safe against the transatlantic reversal of month & day position.
- g. If you're merging in a field/table name, enclose it in square brackets. That way the SQL will still be valid if the variable contains spaces:

```
SQLStr = "SELECT * FROM [" & TableName$ "]" ;"
```

When building SQL strings in VB, then you'll often do this on several lines, concatenating SQLStr with the new string. If you leave a space at the end of every string, then you can guarantee you won't have problems with the text from successive lines running into each other.

- h. If you're using Access 1, you'll keep running into the 1024 character limit on the length of a SQL string. Keep the table & field names short, especially if many JOINS are concerned. Using underscores in names is shorter than spaces, as you don't need the extra 2 characters for the square

brackets around them. If your SQL is slightly too long, then you'll probably see a "Missing semicolon" error, even though the semicolon is obviously there (To you, anyway !).

i. Making a QueryDef is a complicated process that is often slower than executing the query ! Don't mess with the .SQL property, as that is equally slow (Access needs to do a lot of work to turn SQL into its internal query format). Two ways around this: Use ready-built queries, written with Access. If you need to merge in values from variables, then use a query with parameters. Setting parameter values is quick to execute.

j. If you really need to build SQL on the fly -- you need to build an ad hoc query, or to supply table or field names (which can't be done with query parameters), then try using:

`database.Execute SQLStr`

As this doesn't build a QueryDef, then it's quick.

[All tips a to j by Andy Dingley(dingbat@codesmth.demon.co.uk)]

How come I get a "No Current Record" error when I use a Data Control on an empty table?

Well, this is a "feature" courtesy of Microsoft. KB article Q106494 explains this in detail. Basically, the workaround is to add an empty record to the table before the user can do anything (or before you try to do any Moves on the Table).

[George Tatge (gat@csn.org)]

How can I speed up my VB database application?

KB article Q109830 gives some hints. Things you should do include:

- Use Snapshots when possible.
- Use transactions whenever possible.
- Use Dynasets when possible.
- Use SQL action queries when possible.

[George Tatge (gat@csn.org)]

How about Access 2.0 compatibility?

You need the compatibility layer availability. The file COMLYR.EXE is in the MSBASIC library on CompuServe. This file provides all the items necessary for compatibility between VB 3.0 and Access 2.0. [Fred Griffin (72321.3230@compuserve.com)]

The file COMLYR.EXE can be downloaded from ftp.microsoft.com. It is located in the directory /softlib/msfiles.

How do I get a bitmap picture in a field in an Access database?

See p.466 of the Visual Basic (3.0) Programmer's Guide. It contains a section called "Using Bound Picture Box and Image Controls". Basically you have to bind the VB PictureBox to a field in the Access DB, set the .Picture property in the PictureBox, and then move to the next record or something. VB will then store your picture in Access in a form in which it can be retrieved by VB in the future.

If you store the pictures in Access directly (using Access), VB won't be able to read them (using VB 3.0 and Access 1.1).

You can also store the picture's filename as a text field in the database and use LoadPicture() to load that file into the VB PictureBox. [Tim Shea (shea@marcam.com)]

What are some tips for using Setup Wizard?

There were loads of bugs in the setup utilities supplied with VB3. Be sure to get the newest version of SETUPKIT (usually called SETUPK.EXE or -.ZIP). It is available from the sources listed in the beginning of this document, and in the General FAQ.

Alternatively, if you have the older versions, you may have to manually remove the line referring to OLE2UI.DLL in the file SETUPWIZ.INI. See later in this document for dates of newest files on ftp.microsoft.com. Follow the instructions in SETUPK.TXT exactly. The files actually belong in two separate directories. Not placing them correctly can create strange and unusual side effects -- none of them good(!)

Set all involved EXE, DLL and VBX files to Read-Only so that the setup program doesn't modify them.

[Charles F. Mulks (21667cfm@msu.edu)]

A *very* good tip. Actually, make all executables on your system read-only. If not, you can get a sharing violation if you try to run the same DOS executable twice at the same time.

Also, the source code for a SETUP program is *included* with VB3 Pro. It is quite trivial to tailor it to your specific needs.

The question remains: Is SetupWiz good? No! Good enough? Perhaps.

Are there restrictions on what I can distribute with my VB program?

The documentation tells what parts of the Visual Basic kit you can freely distribute: the VBX files, some DLL's and what the SetupKit includes on your distribution diskettes. Reading software license agreements may be more boring than asking the newsgroup, but is nevertheless a good idea. 8^)

There have been some rumours on the newsgroup that you can't redistribute programs written with VB freely. This is nonsense. All applications created with VB can be redistributed freely without royalties (as long as you don't distribute proprietary external files).

The rumours probably originated when Microsoft announced that they will not sell kits allowing third-party software to include the Visual Basic for Applications (VBA) system.

What alternatives to setup wizard do I have?

Perhaps the best one is to simply modify the setup app which is supplied with VB. Look in your VB directory for the setupkit\setup1 directory. There you will find everything you need to do a complete setup program. This sample setup is coded to install a few sample app files and create a program group. You can comment out those lines and change to your files and program mgr. group. There are also a few global variables you will want to change. All of this is contained in the comments in the code.

Using this, and the distribution information in the manual telling you about which files to distribute with your app will make things much easier than using the setup wizard (IMNSHO).

There are also several third party setup products available.

[George Tatge (gat@csn.org)]

Do I need to worry about users who have Progman replacements such as Norton Desktop and PC Tools?

Earlier versions of those products and some others do not respond properly to the DLL commands to create groups and items. More recent versions do. All you can do in this case is to include some information in your readme.txt file that instructs users of those products to shut them down and start up program manager before installing.

[George Tatge (gat@csn.org)]

Can I distribute my app without vbrunXXX.dll?

If you are sure that your users have it or can get it, you can easily distribute your app without vbrunXXX.dll. Simply remove the file from your distribution disk or zip file and ALSO remove it from the setup.lst file.

[George Tatge (gat@csn.org)]

Why won't my setup program install commdlg.dll et. al.?

There are a couple of DLLs that are almost always in use by windows. Commdlg.dll is the most common example. When faced with this problem, there is no easy way out. The full explanation is several pages long and beyond the scope of this FAQ. The general idea is as follows:

Your setup program will need to create a .BAT file to expand and then copy these files. Then, it will need to shutdown Windows (see ExitWindowsExec API call) and run the .BAT file. Then it will need to restart windows and continue your setup program. Your setup program should delete the temporary .BAT file that is no longer needed.

[George Tatge (gat@csn.org)]

Where do I install VBXs and DLLs?

PLEASE- this is one place where everybody's life is much easier if you will follow Microsoft's recommendations. All PUBLIC VBXs and DLLs should be installed in the windows/system directory! A "PUBLIC" DLL or VBX is any which can be purchased on the open market. In other words, if another VB programmer might possibly use the same VBX or DLL, install it in the system directory.

If you have written private VBXs or DLLs that will never be used by any program but yours, you can install them in the same directory where you install your application files.

There are lots of good reasons for doing this, but it makes a short novel to rehearse them all.

[George Tatge (gat@csn.org)]

Multiple identifiers after the DIM statement can be confusing

Some with background from Pascal can try the following

```
Dim iA, iB, iC as Integer
```

and think that all these 3 variables end up as Integer. In fact, the first two end up as default data type, normally Variant.

Instead you should do

```
Dim iA as Integer  
Dim iB as Integer  
Dim iC as Integer
```

which takes up more space, but gives you room to comment your variables (hint, hint); *or*

```
Dim iA%, iB%, iC%
```

which does the whole job.

"Clean up" your project before final EXE compilation.

When you are ready to compile your VB project into your 'finished' EXE, be sure to save the project files, exit VB, restart Windows, run VB, load your project and go straight to compiling. Otherwise, your EXE may be larger in file size than necessary due to 'garbage' getting included in the EXE. For some reason, VB does not fully clean up all of the previously used variables or objects that you may have been playing with while developing your program so these get included in your EXE even though they aren't used. Other VB users have even advocated saving all the project files as ASCII, then loading the ASCII files before compiling to further "clean up" the resulting EXE file.

Multiple END statements can be dangerous; or, The program that refused to terminate.

Suggestion: put the END statement used to exit your program *only* in the Form_Unload event of the main form. Whenever you want to end the program, just tell the main form to unload.

Some have reported that after their program have (supposedly) terminated, it still appears in the task list. This can happen if you only hide secondary forms and forget to unload them when you end/unload the main form.

Also note that the Stop-button on the button-bar of the integrated development environment doesn't really unload anything. It *nukes* the program, which generally is a good idea since it could be a bug in it that caused it to be stuck in an eternal loop or something.

What are the latest versions of the various files used by VB?

<u>Date</u>	<u>File to download</u>	<u>Updates files</u>	<u>Description</u>
3/7/94	BTR110.EXE	BTRV110.DLL	Btrieve IISAM Driver
3/7/94	DATAINDX.EXE	DATAINDX.DOC	"Data Access Guide" Index
3/7/94	GENERIC.EXE	\VB\CDK\GENERIC	Sample custom control source
3/7/94	VBGRID.EXE	GRID.VBX	Grid control
3/7/94	VBHC505.EXE	HC.EXE, HCP.EXE	WinHelp compiler
3/7/94	MSAJT.EXE	MSAJT110.DLL	Access Database Engine
3/8/94	MSCOMM.EXE	MSCOMM.VBX	Serial Communications\control
3/7/94	ORA110.EXE	ORACLE.TXT	Updated ORACLE.TXT file
6/27/94	SETUPK.EXE	SETUP.EXE	Setup Toolkit
3/7/94	VBRUN300.EXE	VBRUN300.DLL	Visual Basic Runtime Library
3/7/94	XBS110.EXE	XBS110.DLL	XBase IISAM Driver

There is an article in the Microsoft Knowledge Base that points to each of these files and provides more detailed information about the update. To find these articles, query the Microsoft Knowledge Base using the file name and the word "update3.00". Note the NEW SETUPKIT update! [Thanks to Marks Harrop <harrop@werple.apana.org.au>]

Please inform the FAQ maintainer about newer versions.

Any tips for VB/Win 3 programmers moving to VBA?

You are in for some surprises. VBA is more unlike VB than most people thought. Especially the development environment is very different, and the language puts more emphasis on objects. The latter is a trend you can get used to for VB also.

For Excel 5 VBA, be aware that the environment is based on the "workbook" idea Microsoft stole from Borland. Your controls will be placed in one sheet, and the code will be in another. Double-clicking on the control to open the code window doesn't help. You have to use the "Tools|Assign Macro" menu option.

Also, be aware that the list of events is nowhere close to what VB3 supports! No GotFocus, no MouseMove, no nothing. You'll be very confused if you try to look for "events" in the VBA docs!

Does VBA support VBXs?

No. If Microsoft have its way, VBX is a dead end. There will never be 32-bit VBXs, but OCXs using OLE 2. VBA is more a subset of VB 4 than VB 3, but it does not fully support OCX yet. It will, though.

How do I access properties on my dialog boxes in VBA?

As noted above, VBA is a cultural chock for VB programmers. If you create a textbox in VBA, call it txName and try to

```
cMyVar=txName.Text
```

the impolite interpreter will give you a "variable not defined" error.

The magic is objects. You have to

```
Dim txName as Object  
Set txName = DialogSheets("NameDialog").EditBoxes("txName")
```

And then you can access your properties like you used to in good ol' VB 3. (Anyone volunteer to beat senseless the guy who thought out this?)

How do I use database routines from Excel VBA?

The documentation is somewhere between sparse and nonexistent on this topic. Any info on VBA and SQL would be much appreciated.

Here Microsoft breaks the tradition and you *can't* use database objects, at least not the way you do in VB. Also, forget dynasets.

I know nothing about databases in VBA. I just bring on the following tips from various magazines:

Both SQLOpen and QueryGetData require a 'connection string'. That's about what the doc's say about the parameter. What is it? The doc is also tragically void of useful examples. Someone dug up the following example:

```
"DSN=My data file;DBQ=c:\access\data.mdb;FIL=RedISAM;"
```

which is about as understandable as it looks. If you use an empty string, you get a dialog which also can give you the string into a spreadsheet cell.










Also, search for SQLREQUEST in the *main* help file for Excel 5 (not the VBA help!) for these examples of connection_string's:

dBASE	DSN=NWind;PWD=test
SQL Server	DSN=MyServer;UID=dbayer;PWE=123;Database=Pubs
ORACLE	DSN=My Oracle Data Source;DBQ=MYSER VER;UID=JohnS;PWD=Sesame

There's a KnowledgeBase on Excel 5 on ftp.microsoft.com. Last time I looked, it was void of database stuff. Still, it may be a good idea to download it as the situation may have changed now.

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VISUAL BASIC FOR WINDOWS (VB/Win)
Frequently asked Questions & Answers Section IX - B
Last-modified: 12.09.94

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Questions

- [!\[\]\(467d80e979964f7f8c752fb22248b5b7_img.jpg\) Does VB/Win make standalone .EXE files?](#)
- [!\[\]\(b71552d33dbf62adf5e5199a70ee02bf_img.jpg\) What is the current version of Visual Basic for Windows?](#)
- [!\[\]\(03134b765d1473836ff001925b1b0550_img.jpg\) Where can I get updated VB and other Microsoft files?](#)
- [!\[\]\(aed6947356668967079310026052edc0_img.jpg\) Help! I am lost on ftp.microsoft.com.](#)
- [!\[\]\(e61aeb0d9066d5d9e54d9b655f50da3d_img.jpg\) Where can I get good up-to-date information about VB?](#)
- [!\[\]\(f7af41ce0777e13bda91fa715111c02a_img.jpg\) Are there any examples of commercial applications built using Visual Basic?](#)
- [!\[\]\(476ddb2354d4ad1cb23a2236b1e49873_img.jpg\) What's the difference between MODAL and MODELESS forms?](#)
- [!\[\]\(1d505a46c82c5cefa23b88c2eee900ce_img.jpg\) When/Why should I use Option Explicit?](#)
- [!\[\]\(3a98690f11ee4baf67262bd776464219_img.jpg\) Why does everybody say I should save in TEXT not BINARY?](#)
- [!\[\]\(35522fe6386206890679adb7b63391b6_img.jpg\) Is the Variant type slower than using other variable types?](#)
- [!\[\]\(d28d4a3445dac344f03b5cebc14c5170_img.jpg\) How do I make a text box not beep but do something else when I hit the Enter key?](#)
- [!\[\]\(3e37ae08976ee7fa41b108254fcb66a7_img.jpg\) How do I implement an incremental search in list/dir/combo/file boxes?](#)
- [!\[\]\(7b30e10e474a15019e378034a5556dd2_img.jpg\) How do I get the Tab key to be treated like a normal character?](#)
- [!\[\]\(be2bdf77bab097eb6ddf17878ba7ec4d_img.jpg\) How do I make an animated icon for my program?](#)
- [!\[\]\(a3b6961c19ef9a7399ba4d220fbe1b94_img.jpg\) What is passing by reference?](#)
- [!\[\]\(f8936a35f239803f29013161729262d8_img.jpg\) I get a "file not found" error on the IIF function when I distribute by program. Uh?](#)
- [!\[\]\(1450f2e803fc906eeaaad04363880ce9_img.jpg\) Is there any way to pass a variable to a form apart from using global variables?](#)
- [!\[\]\(e1133a641f38be314cd75f50ed4924a6_img.jpg\) How should dates be implemented so they work with other language and country formats?](#)
- [!\[\]\(64b8231e633e9e03e4b21734881f56cf_img.jpg\) Can a VB application be an OLE server?](#)
- [!\[\]\(aee5e761ba1b99a3cd9435e499b75672_img.jpg\) How do I dial a phone number without using the MSCOMM VBX?](#)
- [!\[\]\(52709e745fb7eb31be4b8579af786742_img.jpg\) I have \[several\] megabytes of memory. Why do I get an "out of memory" error?](#)
- [!\[\]\(75d779d4d319b7a003931ddd37118216_img.jpg\) How do I mimic a toggle button?](#)
- [!\[\]\(937dedd4570e46ee3c4a246710401be3_img.jpg\) How do I get my application on top?](#)
- [!\[\]\(974c3738d4510157e1809ab73aeae104_img.jpg\) Is there a way to break long lines in VB code?](#)
- [!\[\]\(c7bb2dd93c66a880db3e64904f24c88d_img.jpg\) How do I remove/change the picture property of a control at design time?](#)
- [!\[\]\(3bb700d7c40e9e2206af5942b8c5c319_img.jpg\) Is a \[foo\] VBX/DLL available as shareware/freeware?](#)
- [!\[\]\(3d178dee6dace1310eba6859d6ef1aff_img.jpg\) How do I make my applications screen-resolution independent?](#)
- [!\[\]\(8908d9c8b4c07c22abf7f32422281c85_img.jpg\) How do I do Peek and Poke?](#)
- [!\[\]\(d75070697de9f3219ae584cb916f690b_img.jpg\) Why doesn't "my string" & Chr\\$\(13\) do what I want?](#)
- [!\[\]\(6790559f63632c70e8dec7396eec9933_img.jpg\) How do I prevent multiple instances of my program?](#)
- [!\[\]\(529e178df0386c6bcad973393ec156f6_img.jpg\) How do I implement an accelerator key for a text box?](#)
- [!\[\]\(c14aca2db3a242e576f7b1a23d1606df_img.jpg\) How do I tell when an application executed using the SHELL command is finished?](#)
- [!\[\]\(183f30884007c92c798fd9baac641f68_img.jpg\) How do I access C style strings?](#)
- [!\[\]\(7fd049e3d5b09f66326886f90db7eee2_img.jpg\) How can I change the printer Windows uses in code without using the print common dialog?](#)
- [!\[\]\(f4f14f714d179fc3ad6d33074c29cfda_img.jpg\) Any tips for speeding up VB?](#)
- [!\[\]\(ce6bc5635f395183862e744748f0e49a_img.jpg\) How do I speed up control property access?](#)
- [!\[\]\(250876b05dc5b921a0dffb4910b46ae7_img.jpg\) How much gain in performance will I get if I write my number crunching routines in C instead of Visual Basic?](#)
- [!\[\]\(7a8eadd346032312f0ff3b5ccb032575_img.jpg\) How do you make a TEXTBOX read only? Or, how do I prevent the user from changing the text in a TEXTBOX?](#)
- [!\[\]\(850883bda31a07cad1f4ba52cc448645_img.jpg\) How can I create a VBX?](#)
- [!\[\]\(bf4a97b2de6d114b5fab8067731171bd_img.jpg\) How do you change the system menu \(on the Control-Menu Box\)?](#)
- [!\[\]\(acc579d5beb8f0ad2bcc66820631c8fa_img.jpg\) How do I play MID, WAV or other multimedia files?](#)
- [!\[\]\(b305bb53d76bf84fc88147b5e8150734_img.jpg\) How can I call a 'hidden' DOS program from VB?](#)
- [!\[\]\(e3c7693316c351f4a030b11c1ec45ed4_img.jpg\) How do I do drag & drop between applications?](#)
- [!\[\]\(8a167128ee017e053b61d73443a29b2c_img.jpg\) How do I use GetPrivateProfileString to read from INI files?](#)
- [!\[\]\(ab818153ecdc6649e17f93f910c1dbef_img.jpg\) How do I implement Undo?](#)
- [!\[\]\(1c3e705dc21e015df3827b895b0c69f2_img.jpg\) How do I create a window with a small title bar as in a floating toolbar?](#)
- [!\[\]\(da9cff860f1b25ab93c8000460344a4c_img.jpg\) What is Pseudocode?](#)
- [!\[\]\(87c4696424c9b253829d34c43e257815_img.jpg\) How do I program the Novell NetWare API from VB?](#)
- [!\[\]\(2520a28db95282109302246a432ce4f0_img.jpg\) Does VB support pointers to functions?](#)
- [!\[\]\(370c1d0e1c5597ea2c725b889edf7fe9_img.jpg\) Some Visual Basic 4 rumours](#)

- [!\[\]\(7e19807c61da14f515588e95cd49886c_img.jpg\) What is the Windows API?](#)
- [!\[\]\(8ff9e60a4b0560d7ec99179ef4779d9e_img.jpg\) How do I call a DLL?](#)
- [!\[\]\(ab9b69bf5753a01c76b30af859454360_img.jpg\) What about DLL calls that require callbacks?](#)
- [!\[\]\(c5af66b13c724ca428497900cdbbc9b3_img.jpg\) Tips for calling DLLs \(such as the Windows API\)](#)
- [!\[\]\(1fde827780c8f912fd3ae9174d52d155_img.jpg\) Why can't I use an index with my VB accessed database?](#)
- [!\[\]\(49ab9fdb6ddb6816bcb8ccc012d5cebd_img.jpg\) Why does my compiled VB database app generate an error when it ran just fine in the design environment?](#)
- [!\[\]\(a10cf212d457430b842f8ac59c63db70_img.jpg\) Is the Access Engine and Visual Basic Pro good enough for database work?](#)
- [!\[\]\(e8a826213cf8b53a8c13f5432344afc9_img.jpg\) How do you avoid the "Invalid use of null" error when reading null values from a database?](#)
- [!\[\]\(7ffe3c6e7552aa3eb962276cd7a9a979_img.jpg\) What is "NULL"?](#)
- [!\[\]\(28e94a65fe1d8cf887928bbaaa2c7303_img.jpg\) How can I access a record by record number?](#)
- [!\[\]\(7db790dc622e1ac5f1c44afb7a5212a6_img.jpg\) How about Access 2.0 compatibility?](#)
- [!\[\]\(86147531a4f05b1215989ff8ab43fe6d_img.jpg\) Tips for VB database programming:](#)
- [!\[\]\(c3492017d65b370ec6b463430fff1ce7_img.jpg\) How come I get a "No Current Record" error when I use a Data Control on an empty table?](#)
- [!\[\]\(eadeaa5506f71c8d915378340dd044f1_img.jpg\) How can I speed up my VB database application?](#)
- [!\[\]\(2e7c96d436a2266b49a49932113a1657_img.jpg\) How do I get a bitmap picture in a field in an Access database?](#)
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- [!\[\]\(0d3f1a4e974645225ecf037c1b87a135_img.jpg\) How do I use database routines from Excel VBA?](#)

Listing of Shareware VBX's for Visual Basic for Windows.

20-Feb-94

Inaccuracies and editorializing are the sole responsibility of Adam Harris (harris@cs.uchicago.edu), who would appreciate any corrections or dissenting opinions.

Archive names are from major ftp sites. Names at your favorite site may vary. All Prices are in US\$ and do not include S&H charges (usually \$2-\$3).

[Alarm](#)

[BarCode](#)

[BmpLst](#)

[Calendar](#)

[CTLWhWnd](#)

[EndTask](#)

[File and Disk Space Info](#)

[File Manager Drag and Drop](#)

[Four Controls](#)

[FXTools Demo](#)

[Grinning Jack Deck](#)

[GT Icon](#)

[GT List Box](#)

[GT Toolbar Kit](#)

[Ini File Manager](#)

[InpOut](#)

[JoyStk](#)

[MailSlot](#)

[Menu Event](#)

[Message Blaster](#)

[MhFormScroll](#)

[MListBox](#)

[MouseWatch](#)

[OpenDlg](#)

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[Prompt](#)

[QCards](#)

[RoText](#)

[SoundX](#)

[spSound](#)

[ToolButton](#)

[VBCTL3D](#)

[VBPoint](#)

[VideoSoft Custom Control Library](#)

[VTSocket](#)

[WinSock](#)

[ZipInf](#)

Alarm

Control: alarm1.vbx
Archive: alarm11.zip
Author: Mabry Software
Price: \$10.00
Version: 1.1
Keywords: schedule

Triggers events, like the timer, but using specific times rather than intervals. Wildcard matching elegantly allows you to trigger events at regular intervals (i.e., every 10 minutes).

BarCode

Control: barcod1.vbx

Archive: barcod11.zip

Author: Mabry Software

Price: \$15.00

Version: 1.1 Keywords: data

Generates bar codes, in 4 different styles. Can be bound to a data field.

BmpLst

Control: bmp1st1.vbx
Archive: bmp1st16.zip
Author: Mabry Software
Price: \$20.00
Version: 1.6
Keywords: list, graphic

List box with pictures, vertically aligned over a caption.

Calendar

Control: calendar.vbx

Archive: vbcal.zip

Author: Rijnhaave Office Automation

Price: \$0.00

Version:

Keywords: calendar

Wierd and buggy date entry box with pop-up calendar. No customization, no documentation.

CTLWhWnd

Control: ctlwhwnd.dll
Archive: vbhwnd.zip
Author: Jonathan Zuck
Price: \$0.00
Version:
Keywords: api

One function, ControlhWnd, which returns the hWnd for a given control.

EndTask

Control: entask.dll

Archive: entask.zip

Author: Jeff Simms

Price: \$0.00

Version:

Keywords: task

Intercepts "End Task" from the Task Manager.

File and Disk Space Info

Control: dfinfo1.vbx
Archive: dfinfo14.zip
Author: Mabry Software
Price: \$15.00
Version: 1.4
Keywords: disk, file

Two controls provide technical statistics of a drive and extended file information, respectively.

File Manager Drag and Drop

Control: fmdrop1.vbx

Archive: fmdrop10.zip

Author: Mabry Software

Price: \$15.00

Version: 1.0

Keywords: file, drag-drop

Enables drag and drop of single or multiple files from the File Manager or what have you.

Four Controls

Control: <see below>

Archive: vb4ctrls.zip

Author: Jeng Long Jiang

Price: \$0.00

Version:

Keywords: graphic, status

Four graphic controls: vmeter.vbx and hmeter.vbx are "flooding" status gauge controls; spin.vbx (!) is a spin tool. The best of the lot seems to be 3dlabel.vbx, which is actually a button which holds states like a toolbar button. No documentation.

FXTools Demo

Control: fximage.vbx

Archive: fxtool.zip

Author: ImageFX

Price:

Version: 1.0

Keywords: demo, graphic

Demo of the FXTools suite of VB controls (fxlabel.vbx and fximage.vbx). An impressive collection of wipes, fades, block text, drop shadows, etc.

Grinning Jack Deck

Control: vbcards.dll

Archive: vbcards.zip

Author: Richard R. Sands

Price: \$0.00

Version: 1.01p

Keywords: game

Provides a bitmap collection of cards, including a joker, and basic card API.

GT Icon

Control: gticon.dll

Archive: gticon.zip

Author: George R. Torralba

Price: \$0.00

Version:

Keywords: icon, drag-drop

Assigns and retrieves the DragIcon property of controls.

GT List Box

Control: gtlst.vbx

Archive: tlstvb2.zip

Author: George R. Torralba

Price: \$15.00

Version: 2.0

Keywords: list, graphic

List box with some extra properties to let you set tab positions, control the existence of scroll bars, color items in the list, or associate bitmaps with items. [Free for non-commercial use.]

GT Toolbar Kit

Control: gttbar.vbx

Archive: gttbar01.zip

Author: George R. Torralba

Price: \$15.00

Version: 1.0

Keywords: toolbar, graphic, status

GT Toolbar provides a toolbar button, represented by a cell of a toolbar bitmap. Registered users can use the picture property to define their own toolbar graphics. (You can't force the button to stay in down state, unfortunately.) GT Panel is a stripped down 3d panel useful for as a container for toolbars or status boxes.

Ini File Manager

Control: inicon2.vbx

Archive: inicon26.zip

Author: Mabry Software

Price: \$5.00

Version: 2.6

Keywords: ini

Provides an interface to reading and writing ini files, including win.ini, or application specific ini files.

InpOut

Control: inpout.dll
Archive: inpout.zip
Author: Jay Munro
Price: \$0.00
Version:
Keywords: io

An INP and OUT replacement, written in assembler and used like the QuickBasic routines. Includes source. (For some reason Mr. Munro saw fit to include Software Assist's SCFILE package -- the dll is actually very small.)

JoyStk

Control: joystick1.vbx?

Archive: joystick10.zip

Author: Mabry Software

Price: \$15.00

Version: 1.0

Keywords: io

Provides an interface to up to two joysticks.

MailSlot

Control: mslot1.vbx
Archive: mslot10.zip
Author: Mabry Software
Price: \$30.00
Version: 1.0
Keywords: mail

Mail slot interface.

Menu Event

Control: menuev2.vbx

Archive: menuev21.zip

Author: Mabry Software

Price: \$10.00

Version: 2.1

Keywords: menu, status

Emits menu events while the highlight travels over entries in the menu bar, before the `_click` event is called. Good in combination with dynamic status boxes.

Message Blaster

Control: msgblast.vbx

Archive: tbox100.zip

Author: Ed Staffin

Price: \$0.00

Version: 1.1

Keywords: toolbar, graphic

Provides a floating palette, complete with tiny title bar, which you can use in conjunction with an MDI form. Message notification is rather crude and hacky.

MhFormScroll

Control: mhfs200.vbx

Archive: mhfs200.zip

Author: MicroHelp

Price: \$0.00

Version: 2.0

Keywords: scroll

Add scroll bars to a form or a container. Crashed my computer, so I don't know if it works.

MListBox

Control: mlistbox.vbx

Archive: mlist110.zip

Author: Mike Warning

Price:

Version: 1.1

Keywords: list

Multiple selection list box with ability to find strings, associate numeric data with list items, and set tabs with some precision. Variable pricing scheme.

MouseWatch

Control: mwatch.dll

Archive: mwatch.zip

Author: User Friendly, Inc.

Price: \$0.00

Version:

Keywords: mouse, status

Dynamically tracks mouse position, emitting `_KeyDown` events to the form. Good for dynamic hinting, a la Word Perfect.

OpenDlg

Control: opendlg.vbx

Archive: opendl.zip

Author: Zane Thomas

Price: \$0.00

Version:

Keywords: graphic

Does the same thing as cmdialog.vbx.

PBClone Windows Library

Control: pcbwin.dll

Archive: pcbwin.zip

Author: Thomas Hanlin III

Price: \$19.95

Version: 1.0

Keywords: math, utility

A suite of utility routines: number of floppy or comm ports, checksums, bit operations, etc.

Percentage Bar

Control: percnt2.vbx

Archive: percnt23.zip

Author: Mabry Software

Price: \$10.00

Version: 2.3

Keywords: graphic, status

Very nice 3D style percentage bar, effectively replacing threed's flooding SSPanel. Doesn't have wierd flood types like SSPanel (circular, right to left), but does include text color reversal over the flood, bevelled floods, and no flashing at all. A much more standard look.

Prompt

Control: prompt.vbx

Archive: prompt11.zip

Author: Andrew S. Dean

Price: \$15.00

Version: 1.1

Keywords: cli

Textbox variant for command-line-style input. Includes argument parsing into words and a history capacity.

QCards

Control: qcard.dll

Archive: qcard.zip

Author: Stephen Murphy

Price: \$0.00

Version:

Keywords: game

Deck of cards with card support functions. Can work with 2 decks at a time, no jokers.

RoText

Control: rotext1.vbx?

Archive: vbrotfnt.vbx

Author: Mabry Software

Price: \$15.00

Version:

Keywords: label, font, graphic

Provides rotatable labels, TrueType only.

SoundX

Control: soundx1.vbx
Archive: soundx12.zip
Author: Mabry Software
Price: \$10.00
Version: 1.2
Keywords: matching

Metaphone and Soundex text matching algorithms let you search by phonic affinity.

spSound

Control: winsound.dll

Archive: spsoun.zip

Author: Alfred J. Giordano

Price: \$0.00

Version:

Keywords: sound

Provides low-level port-based sound routines.

ToolButton

Control: toolbutn.vbx

Archive: vbtool20.zip

Author: Brett Foster

Price: \$0.00

Version: 2.0b

Keywords: toolbar, help, graphic

Full-feature toolbar buttons, with up to 6 states (for attributes). Use your own image and break it into cells of graphic buttons, or use the suite of standard buttons. Also includes ContextHelp control (same vbx) to assist with help management.

VBCTL3D

Control: vbctl3d.vbx

Archive: vb3d.zip (?)

Author: Bernd Beeks & Jeff Sims

Price: \$29.00

Version: 1.32

Keywords: graphic

When added to a form, transforms standard controls into embedded, 3d controls. Covers labels, message boxes, check boxes, even menus and user-specified controls (by class name). Does not allow you to specify bevel width or depth.

VBPoint

Control: vbpoint.dll

Archive: vbptr.zip

Author: Jonathan Zuck

Price: \$0.00

Version:

Keywords: api

Two routines: convert long pointers (LP) to VB strings, and copy strings to another address (another LP).

VideoSoft Custom Control Library

Control: vsvbx.vbx

Archive: 3dctrls or v

Author: VideoSoft

Price: \$45.00

Version: 2.2a

Keywords: matching, graphic

Three controls: 3D Elastic, a smart container which resizes it's contents automatically, embeds contained controls in true 3d style, and can be nested to provide code-free window splitter bars; Awksome, a text parser based on the AWK language; and IndexTab, which groups controls with a hypercard looking tabbed notepad.

VTSocket

Control: vtsocket.vbx

Archive: vtsocket.zip

Author: Visual Technology Products

Price: \$50.00

Version: 1.0b

Keywords: comm

Windows sockets support. Does not support UDP sockets, out of band, or broadcasting.

WinSock

Control: vbwsk.vbx
Archive: vbwsk01a.zip
Author: Brian Syme
Price: \$0.00
Version: 0.1a
Keywords: comm

Provides access to Windows Sockets API.

ZipInf

Control: zipinf1.vbx
Archive: zipinf10.zip
Author: Mabry Software
Price: \$10.00
Version: 1.0
Keywords: compress

Provides thorough information about the files in a zip Archive. Does not uncompress files or deal with other sorts of Archives.

Help format by Tim Roberts
Phone: (902) 494 2842
FAX: (902) 494-1107
E-Mail: TJR@AC.DAL.CA

VB/Win FAQ Maintainer
Jan Steinar Haugland
E-Mail: Jan.Haugland@uib.no

VB/Win Shareware FAQ Maintainer
Adam Harris
E-Mail: harris@cs.uchicago.edu

VB/WIN Commercial VBX FAQ Maintainer
Alvin Wang
E-Mail: blpwang@acs.ucalgary.ca

Note

From this issue of the FAQ I introduce symbols in topic header and TOC:

[++] means topic is updated in this issue

[]** means topic is new in this issue

Hope this makes it easier for Our Regular Readers ;-)

Commercial Visual Basic for Windows Products

The next release will be produced from an Access database that will be available from CICA. I will also be releasing a viewer program with some Query by Example capabilities. This has been delayed by work schedules. I added some more information.

Author: Alvin Wang

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Inaccuracies and editorializing are the sole responsibility of Alvin Wang (blpwang@acs.ucalgary.ca), who would appreciate any corrections or dissenting opinions.

All prices are in US funds unless otherwise stated.

Contacting the Editor

3553 31 Street NW, Suite 100
Calgary, AB, T2L 2K7

New Reviews of Products:

AREAS Covered

[Accounting Source](#)
[Charting Libraries](#)
[Communications Libraries](#)
[Database Access Libraries](#)
[Debuggers](#)
[Drawing Libraries](#)
[Email Libraries](#)
[File Viewers](#)
[General Libraries](#)
[Gis Libraries](#)
[Grid Libraries](#)
[Help File Creation Tools](#)
[Hypertext Libraries](#)
[Imaging Libraries](#)
[Mail Access Libraries](#)
[Mainframe Access Libraries](#)
[Midi Libraries](#)
[Misc Libraries](#)
[Multimedia Libraries](#)
[Network Libraries](#)
[Pen Libraries](#)
[Print Tools](#)
[Programming Tools](#)
[Project Management Tools](#)
[Report Writers](#)
[Scientific/Statistical Libraries](#)
[Special Effects Libraries](#)
[Speech Libraries](#)
[Spelling Libraries](#)
[Spreadsheet Libraries](#)
[Telephone Management Libraries](#)
[Test Tools](#)
[Text Libraries](#)
[Word Processing Libraries](#)

[User Interface Libraries](#)

[Appendix A Addresses Of Companies](#)

ACCOUNTING SOURCE

Accounting System Developer's Kit

Author: Bayou City Systems
Price: \$
Version:
Royalties: Depends
Keywords: ACCT SOURCE AP GL AY PAY

CHARTING LIBRARIES

ChartPro

Author: Sub Systems Inc.
Price: \$399.00
Version:
Royalties: None
Keywords: DLL Chart CSOURCE

Graphics Server SDK

Author: Pinnacle Publishing Inc
Price: \$249.00
Version: 2.0
Royalties: ??
Keywords: DLL

COMMUNICATIONS LIBRARIES

Crystal Comm

Author: Crystal Software
Price: \$179
Version:
Royalties: None
Keywords: DLL COMM

PDQComm for Windows

Author: Crescent Software
Price: \$149.00
Version:
Royalties: None
Keywords: VBX COMM

I have found this product to be very well written. I am waiting for the latest version. The technical support group was very helpful with my problems with previous versions.

Microhelp Communications

Author: MicroHelp Inc.
Price: \$149
Version:
Royalties: None
Keywords: DLL COMM

DATABASE ACCESS

Aware/VBX

Author: FarPoint Technologies
Price: \$69.95
Ver: 1.0
Royalties: None
Keywords: Data-Access VBX

Bridgit

Author: Unelko Corp
Price: \$69.95
Version: 3.0
Royalties: None
Keywords: Data-Access DLL DBASE

CodeBasic

Author: Sequiter Software
Price: \$249.95
Version:
Royalties: None
Keywords: Data-Access VBX DBASE

Controls for Btrieve

Author: Smithware Inc
Price: \$249.95
Version:
Royalties: None
Keywords: Data-Access VBX Btrieve

Multilink/VB2

Author: Q+E
Price: \$399
Version: 2.0
Royalties: None
Keywords: Data-Access VBX

This is the only control that I am aware of that offers Query by Example. It is a very impressive and stable tool. The error handling is more robust than the JET engine. It over 30 databases but I only tested a few. They all worked fine. I really like the ease of use but there are more tools available for the JET engine.

Paradox Engine

Author: Borland International
Price: \$495
Version: ??
Royalties: ??
Keywords: DLL PARADOX

I used this with C and found it to be very reliable and reasonably quick.

Visual Basic Pro

Author: Microsoft
Price: \$495
Version: 3.0
Royalties: None
Keywords: Data-Access VBX
Comment: The JET engine is the standard.

This is the standard. You need the data access control for many of the third party tools. It is the engine supplied with Access 1.0. The biggest problem that I have is the lack of support for Access security. The phone support is impossible but I like the Fax Back support.

Visual/db Database Manager

Author: AJS Publishing
Price: \$149 Network \$299
Version: ??
Royalties: ??
Keywords: Data-Access VBX DBASE

Watcom SQL for Windows

Author: Watcom
Price: \$395
Version: ??
Royalties: ??
Keywords: DB SQL

DEBUGGING TOOLS

PinPoint

Author: Avanti Software Inc.
Price: \$199
Version: ??
Royalties: NA
Keywords: DEBUG

DRAWING/GRAPHICS LIBRARIES

3D Tools for VB

Author: Micro System Options
Price: \$149
Version:
Royalties: ??
Keywords: DLL 3D RENDER

VBX Artist

Author: Bennet-Tec Information Systems
Price: \$250/\$275
Version:
Royalties: None
Keywords: VBX DRAWING

Visio

Author: ShapeWare Corporation
Price: \$199
Version: 2.0
Royalties: None
Keywords: OLE DRAWING

EMAIL LIBRARIES

FILE VIEWERS

VBVIEWER

Author: Microhelp Inc.
Price: \$99
Version:
Royalties: None
Keywords: VBX VIEW

GENERAL LIBRARIES

QuickPak Professional for Windows

Author: Crescent Software
Price: \$199.00
Version:
Royalties: None
Keywords: Vbx Calendar Meter Form Picture Hypertext Etc

VB/Muscle

Author: MicroHelp Inc.
Price: \$199.00
Version: 2.1
Keywords: DLL

GIS LIBRARIES

Map Server 2

Author: Geosoft Ltd
Price: 299 Pounds
Version:
Royalties: None
Keywords: DLL MAPPING

GRID LIBRARIES

Data Widgets

Author: Sheridan Software Systems
Price: \$129
Version:
Keywords: Grid Data-Aware VBX

This grid has a different way of implementing pull downs, which takes a bit of fiddling to get working but it is worth it. There is a great deal of speed improvement since it only reads in as much as required.

Grid/VBX

Author: FarPoint Technologies
Price: \$??
Version: 1.0
Royalties: None
Keywords: Grid Data-Aware VBX

TrueGrid Pro

Author: APEX Software Corporation
Price: \$99.95
Version: 2.1c
Keywords: Grid Data-Aware VBX

A very easy to use grid. The nicest feature is that memo fields can be pulled down for in place editing.

HELP FILE CREATION TOOLS

ForeHelp

Author: ForeFront
Price: \$ 395
Version: 1.03
Royalties: None
KeyWords: HELP

HelpBreeze

Author: Solutionsoft
Price: \$ 349
Version: 1.6
Royalties: None
Demo File: HLPBRZ.ZIP on CICA
KeyWords: HELP WINWORD

This program creates help files and needs Word for Windows 2.x or 6.x. There are benefits to using a program that needs Winword since you can import your manual and turn it into your help file. The program runs on top of Word by adding a toolbar and more selections to your pulldown menus. The jumps are simulated quite well. The icons on the new toolbar are just the first letter of the command so its good that it has popup help balloons.

Windows Help Magician

Author: Software Interphase Inc.
Price: \$
Version: ???
Royalties: None
Keywords: HELP

HYPertext LIBRARIES

Hypertext Manager

Author: Braintree Ltd.
Price: \$89
Version: ???
Royalties: None
Keywords: HYPertext

IMAGING LIBRARIES

Accusoft Image Format Library

Author: Accusoft Corporation
Price: \$295.00
Version: 4.0
Royalties: None
Keywords: VBX JPEG IMAGE

ImageKnife/VBX PRO

Author: Media Architects
Price: \$299.00
Version: ??
Royalties: None
Keywords: VBX JPEG IMAGE DATA-AWARE TWAIN

ImageMan/VB

Author: Data Techniques Inc.
Price: \$299
Version: 3.0
Royalties: None
Keywords: VBX JPEG IMAGE

Their support is pitiful. I have been waiting for my free upgrade for six months and the response is always that it is in the mail. I could have bought an upgrade for the cost of long distance calls but I wouldn't be sure that I would get it.

Imagestream/VB

Author: Visual Tools
Price: \$295.00
Version: ??
Royalties: None
Keywords: VBX JPEG IMAGE

Lead Tools/VB

Author: LEAD Technologies
Price: \$295.00
Version: Royalty: None
Keywords: VBX JPEG IMAGE

A very reliable VBX. It's forte is its proprietary CMP compression but it reads and writes most others. That is most but not all. Some of the newer programs promise more but I can't compare. The tech support is very responsive.

Metaview Imaging Control for VB

Author: Metafile Information Systems

Price: \$995.00
Version: 2.1 Royalty: None
Keywords: VBX TIF IMAGE ANNOTATE

This VBX enables you to add hotspots and stickies to TIFF images. The demo needs more work to demonstrate the features better. It read the Winfax TIFF but not the Coreldraw or Microsoft Chart TIFF. Unfortunately, the manual was only 56 pages and didn't explain what kind of TIFF was required. It just implied that it could read all TIFFs.

Picture++

Author: Rainbow Imaging
Price: \$425.00
Version: Royalty: ??
Keywords: IMAGE

Vision Tools

Author: Evergreen Technologies
Price: \$495.00
Version:
Royalty: \$195-\$95
Keywords: VBX IMAGE MEDICAL

The only control that I have found that accesses medical images but you should contact them to see if yours is covered.

MAIL ACCESS LIBRARIES

VB/NotesLink

Author: Brainsorm Technologies
Price: \$795
Version: ??
Royalties: ??
Keywords: VBX NOTES

Open Mail System

Author: Raindrop Software
Price: \$??
Version: 1.0
Royalties: ??
Keywords: DLL MAIL

MAINFRAME ACCESS LIBRARIES

QuickApp

Author: DCA
Price: \$??
Version: ??
Royalties: None
Keywords: VBX MAINFRAME

Rumba SDK

Author: WallData
Price: \$7500
Version: ??
Royalties: None
Keywords: VBX MAINFRAME

TransPortal Pro

Author: Frustrum Group
Price: \$??
Version: ??
Royalties: None
Keywords: DLL MAINFRAME 3270 5250 VT100

MIDI LIBRARIES

MISC LIBRARIES

AutoData SDK II

Author: AutoData Systems

Price: \$295.00

Version:

Royalties: None

Keywords: DLL OCR BARCODE DATA ENTRY FORM

MULTIMEDIA LIBRARIES

Media Shop

Author: Motion Works
Price: \$299.00
Version:
Royalties: ??
Keywords: VBX ANIMATE

MediaKnife/VBX

Author: Media Architects
Price: \$299.00
Version:
Royalties: ??
Keywords: VBX ANIMATE

NETWORK LIBRARIES

IPX Toolkit

Author: Intelc Systems
Price: \$295.00
Version:
Royalties: None
Keywords: VBX Network

NetPak Pro For Windows

Author: Crescent Software
Price: \$179.00
Version:
Royalties: None
Keywords: VBX Network

MicroHelp Network Library

Author: MicroHelp
Price: \$99.00
Version:
Royalties: None
Keywords: VBX Network

PEN LIBRARIES

PRINT TOOLS

Code Print Pro

Author: Pinnacle Publishing Inc
Price: \$99.00
Version:
Royalties: NA
Keywords: PRINT TOOL CODE

Pretty Printer

Author: Aardvark Software
Price: \$79.99
Version:
Royalties: NA
Keywords: PRINT TOOL CODE

PROGRAMMING TOOLS

Installit/VBX

Author: HPI
Price: \$??
Version: ??
Keywords: INSTALL

PCVS for VB

Author: Intersolv
Price: \$??
Version: ??
Keywords: PROJECT

VB Assist

Author: Sheridan Software Systems
Price: \$179
Version: ??
Keywords: PROG TOOL ASSIST

It isn't as closely integrated as I would like but the ability to size and place controls is more than worth the hassle. If you are creating screens with lots of fields, this is highly recommended to save lots of fiddling. There are lots of other features too.

VB Compress

Author: Whippleware
Price: \$99.95
Version: ??
Keywords: COMPRESS

VB Project Works

Author: Young Software Works
Price: \$??
Version: ??
Keywords: PROJECT

Version Stamper-VB

Author: DesaWare
Price: \$??
Version: 1.0
Keywords: VERSION

If you distribute software based on VB, you probably have a problem insuring that your clients have the correct version of all the VBXs and DLLs required. I often have a problem with users deleting files and restoring incorrect versions. This program is distributed with your application and solves that problem. It passed all the simple tests that I tried.

PROJECT MANAGEMENT TOOLS

Microsoft Project

Author: Microsoft
Price: \$695
Version: 4.0
Royalties: \$695
Keywords: OLE PROJECT

REPORT WRITERS

Crystal Reports Pro

Author: Crystal Services
Price: \$129.00
Version: 3.0
Royalties: None
Keywords: VBX REPORT

MicroHelp Report Generator

Author: MicroHelp Inc.
Price: \$189.00
Version: ??
Royalties: None
Keywords: VBX REPORT

R&R Report Writer

Author: Concentric Data Systems Inc.
Price: \$249-395
Version: ??
Royalties: None
Keywords: REPORT

This report writer had the most painful method of passing parameters that I have ever seen. You have to use a common file to pass parameters. The only nice feature that I found was the compatibility with a DOS version.

ReportSmith

Author: Borland International
Price: \$299
Version: ??
Royalties: ??
Keywords: OLE REPORT

SCIENTIFIC/STATISTICAL LIBRARIES

QuickPak Scientific

Author: Crescent Software
Price: \$149.00
Version: ??
Royalties: ??
Keywords: DLL MATH

SPSS Developer's Kit

Author: SPSS
Price: \$495
Version: ??
Royalties: ??
Keywords: STAT OLE

SPECIAL EFFECTS LIBRARIES

FXTools/VB

Author: ImageFX
Price: \$129.00
Version: ??
Royalties: None
Keywords: VBX FX

SPEECH LIBRARIES

Phonetic Engine 400

Author: Speech Systems Inc.
Price: \$1195+
Version: ??
Royalties: \$995+
Keywords: VBX SPEECH

SPELLING LIBRARIES

Sentry Spelling-Checker Engine

Author: Wintertree Software Inc.
Price: \$299
Version: 2.3
Royalties: None
Keywords: SPELL DLL

Microhelp SpellPro

Author: MicroHelp Inc.
Price: \$129.00
Version: ??
Keywords: VBX SPELL

Spell Time

Author: Sub Systems
Price: \$389
Version: ??
Royalties: None
Keywords: SPELL DLL CSOURCE

SpellTool VB

Author: Turbo Toolware
Price: \$??
Version: ??
Keywords: VBX SPELL

VT-Speller

Author: Visual Tools
Price: \$149
Version: ??
Royalties: None
Keywords: VBX SPELL OLE

SPREADSHEET LIBRARIES

Excel

Author: Microsoft
Price: \$\$
Version: 5.0
Royalties: \$\$
Keywords: OLE Spreadsheet

The documentation is sparse on OLE Automation but it is well worth the effort. The problem is the cost in dollars and resources of using this solution.

Formula One

Author: Visual Tools
Price: \$295
Version: 1.0
Royalties: None
Keywords: VBX Spreadsheet OLE

The only VBX that I know is Excel compatible. I like Excel because I used to teach it so I found this very easy to use and much cheaper than Excel.

Spread/VBX

Author: Farpoint
Price: \$245
Version: 2.0
Royalties: None
Keywords: VBX Spreadsheet

It is not as easy to use as Excel. The demo application was very helpful.

TEST TOOLS

SQA Team Test

Author: SQA Inc.
Price: \$
Version: ??
Royalties: NA
Keywords: TEST

TEXT LIBRARIES

ZyIndex Developer's Toolkit

Author: ZyLAB

Price: \$

Version: ??

Royalties: ??

Keywords: VBX TEXT SEARCH

Thesaurus LIBRARIES

ThesDB Thesaurus Database

Author: Wintertree Software Inc.
Price: \$299
Version: 2.1
Royalties: None
Keywords: THESAURUS DLL

VIRTUAL REALITY

WorldToolKit

Author: SENSE8
Price: \$795
Version: 2.0
Royalties: ??
Keywords: VBX VR

WORD PROCESSING LIBRARIES

ALLText

Author: Bennet-Tec Information Systems
Price: \$125/\$150
Version: 3.0
Royalties: None
Keywords: VBX TEXT

ALLText HT/Pro

Author: Bennet-Tec Information Systems
Price: \$350/\$375
Version: 3.0
Royalties: None
Keywords: VBX TEXT HYPERTEXT DATA-AWARE

Word

Author: Microsoft
Price: \$495
Version: 6.0
Royalties: \$495
Keywords: OLE WP TEXT SPELL

OLE Automation requires WordBasic and the documentation is hard to find. It performs much faster than DDE once you get past loading word. Another massive product from Microsoft.

USER INTERFACE LIBRARIES

3D Gizmos

Author: MicroHelp
Price: \$9.00
Version: ??
Royalties: None
Keywords: VBX UI DATA-AWARE

The look is very nice but the lookups cause a lot of overhead in loading a screen. It preloads all the lookup data so a few good sized lookups and your user will fall asleep waiting for the screen.

3D Widgets

Author: Sheridan Software Systems
Price: \$109.00
Version: ??
Royalties: None
Keywords: VBX UI DATA-AWARE

Custom Control Factory

Author: DesaWare
Price: \$??
Version: 2.0
Royalties: None
KeyWords: UI

Kolibri

Author: European Software Connection
Price: \$249.00
Version: ??
Royalties: None
Keywords: VBX UI

NICE (Natural Interface for Computing Environments)

Author: NCR
Price: \$
Version:
Royalties: None
Keywords: VBX UI

VB/Magic Controls

Author: AJS publishing Inc.
Price: \$149.00
Version:
Royalties: None
Keywords: VBX UI

SpyWorks/VB

Author: DesaWare
Price: \$149.00
Version: ??
Royalties: None
KeyWords: VBX UI

If you like msgblast.vbx, you'll love this tool. It allows you to do some amazing things with VB that you thought would require C++. The examples are quite impressive. The other capabilities like checking to see how much resources are being consumed are very useful. Basically, this allows you to do anything that can be done in Windows using VB. This is at the expense of making it much easier to crash Windows.

ToolsKan VB

Author: Kansmen Corp
Price: \$99.00
Ver: 1.0
Royalties: None
KeyWords: VBX UI

VSVBX

Author: AJS publishing Inc.
Price: \$49.00
Version:
Royalties: None
Keywords: VBX UI TAB AWK ELASTIC

TELEPHONE MANAGEMENT TOOLS

Visual Voice for Dialogic Version 1.02

Author: Stylus Innovation
Price: \$495 - 2 line \$995 - 4 line \$1895 - Unlimited
Version: 2.0
Royalties: None
Keywords: VBX TELEPHONE DIALOGIC

4-line software plus 4-line Dialogic hardware \$1995

Visual Voice for MWave 1.0

Author: Stylus Innovation
Price: \$495
Version: 2.0
Royalties: None
Keywords: VBX TELEPHONE MWAVE

Software and single-line MWave hardware \$695. I bought this and should have a review ready in a few weeks.

Visual Fax 1.0 (supports up to ten faxmodems in a single PC)

Author: Stylus Innovation
Price: \$495
Version: 2.0
Royalties: None
Keywords: VBX FAX

Supports up to ten faxmodems in a single PC.

Appendix A Addresses of Companies

Aarvark Software
800-482-2742
201-833-4355
201-833-1216 Fax
CompuServe 70544,1372
972 Sheffield Road
Teaneck, NJ, USA 07666
Products: Pretty Printer

Accusoft Corporation
800-525-3577
508-898-2770
508-898-29662 Fax
112 Turnpike Road
PO Box 1261
Westborough, MA, USA 01581
Products: Accusoft Image Format Library

AJS Publishing
800-992-3383
310-215-9135 Fax
PO Box 83220
Los Angeles, CA, USA 90083
VB/MAGic Controls

APEX Software Corporation
412-681-4343
412-681-4384 Fax
Internet information: truegrid@apexsc.com
Internet orders: tgorders@apexsc.com
CompuServe: 71053,1062
Anonymous FTP: <ftp.apexsc.com> (demos and patches)
Mailing list: tglist-request@apexsc.com (announcements, patch notices)
4516 Henry Street
Pittsburgh, PA, USA 15213
Products: Truegrid, Agility

Avanti Software Inc.
800-758-7011
415-329-8999
415-329-8722
CompuServe: 76260,266
385 Sherman Avenue, Unit 6
Palo Alto, CA, USA 94306
Products: PinPoint

AutoData Systems
800-662-2192
612-941-8180
612-941-7312 Fax

10365 West 70th Street
Eden Prairie, MN USA
55344-3446

Bayou City Systems
713-777-3736
713-777-3746 Fax
8535 Triple Crown Drive
Houston, TX, USA
77071
Products: Accounting Systems Developer Kit

Bennet-Tec Information Systems
516-433-6283
516-822-2679 Fax
71201.1075@compuserve.com
10 Steuben Drive
Jericho, NY, USA
11753
Products: AllText, Alltext Pro, VBX Artist, Picscroll, FileIcon&DragDrop
ScatterPlot3D, Tlist
Comment: The second price is the cost for non-US customers. The only company with a differential pricing policy.

Borland
800-366-6464 ext 8034 USA
800-461-3327 Canada
408-461-9000
408-461-8088 Fax
1800 Green Hills Road
Scotts Valley, CA 95067-0001
Products: Visual Solutions, Paradox Engine

Brainstorm Technologies
617-492-3399
24 Thorndike Street
Cambridge, MA USA 02141
Products: VB/NotesLink

Braintree
800-745-4645
718-224-4728 Fax
42-42 204th Street
Bayside, NY, USA
11361
Products: Hypertext Manager. Ad Hoc Data Viewer, Security Toolkit

Concentric Data Systems Inc.
508-366-1122
508-366-2954 Fax
110 Turnpike Road
Westboro, MA, USA 01581

Products: R&R Report Writer

Crescent Software
800-352-2742 Toll Free Sales
203-438-5300 Tech Support
203-431-4626 Fax
11 Bailey Avenue
Ridgefield, CT USA 06877-4505
Products: QuickPak Pro, PDQComm, QuickPak Scientific, NetPak PRk, XREF

Crystal Services
1050 West Pender Street, Suite 2200
Vancouver, BC, Canada V6E 3S7
Products: Crystal Reports, Crystal Reports Pro, Crystal Reports Server

Crystal Software
906-822-7992
906-822-7994 Fax
329 Fire Lake Road
Crystal Falls, MI, USA 49903
Products: CrystalCOMM

Data Techniques Inc.
800-868-8003
704-682-4111
704-682-0025 Fax
704-682-4356 BBS
Products: ImageMan/VB

DCA
800-348-3221 ext 59BB
Products: QuickApp

Desaware
408-377-4770
408-371-3530 Fax
5 Town & Country Village #790
San Jose, CA 95128
Products: Custom Control Factory, Spyworks VB, Version Stamper/VB

Distinct
408-781-0781
408-366-2101 Fastfacts
408-741-0795 email
mktg@distinct.com
Products: Distinct TCP/IP

EITech Development
800-553-1327
404-928-8960
404-924-2807 Fax
4374 Shallowford Industrial Parkway

Marietta, GA, USA 30066
Products: Compression Plus, Fax Plus

European Software Connection
913-832-2070
913-832-8787 Fax
PO Box 1982
Lawrence, KS, USA 66044-1982
Products: Kollibri

Evergreen Technologies
207-326-8300
207-326-8333 Fax
Main Street, PO Box 795
Castine, Maine, USA 04421
Products: Vision Tools

Farpoint Technologies
804-378-0432
804-378-1015 Fax
569 Southlake Blvd
Richmond, VA, USA, 23236
Products: Aware/VBX, Grid/VBX, Spread/VBX

ForeFront
303-499-9181
5171 Eldorado Springs Drive
Boulder, CO, USA, 80303
Products: ForeHelp

Frustrum Group Inc.
800-548-5660
212-338-0721
212-984-0690 Fax
90 Park Avenue, Suite 1600
New York, NY, USA, 10016
Products: TransPortal Pro

Geosoft Ltd
44-532-344000
44-532-465071 Fax
Unit 3M Springfield House
Hyde Terrace
Leeds LS2 9LN, UK
Products: Map Server 2

HPI
800-448-4154
205-880-8705 Fax
205-880-8785 BBS
sales@instalit.com
917C Willowbrook Drive

Huntsville, AL, USA 35802
Prpducts: Installit/VBX

ImageFX
716-272-8030
2021 Brighton-Henrietta TL Rd.
Rochestor, NY, USA
14623
Products: FXTools

Imagesoft Incorporated
516-767-2233
516-767-9067 Fax
516-767-9074 BBS
UUCP Address: mcdhup!image!info
2 Haven Avenue
Port Washington, NY, USA 11050
Products: ObjectTrieve for VB

Intelec Systems
501-221-3600
501-221-7412 Fax
10201 West Markham, Suite 101
Little Rock, AR, USA 72205
Products: IPX Toolkit

Intersolv
800-547-7827
44-727-812812
1700 NW 167th Place
Beaverton, OR, USA 97006
Products: PCVS for VB

Kansmen Corp
408-263-9881
Products: ToolsKan VB

LEAD Technologies
800-637-4699
704-549-5532
704-548-8161 Fax
8701 Mallard Creek Rd.
Charlotte, NC, USA 28262
Products: LEADTOOLS/VB

Media Architects
503-297-5010
503-297-6744 Fax
1075 NW Murray RD, Suite 230
Portland, OR, USA 97229-5501
Products: ImageKnife/VBX Pro, MediaKnife VBX

Metafile Information Systems Inc.
507-286-9232
507-286-9065 Fax
421 First Avenue SW
Rochester, MN, USA 55902
Products: Metaview Imaging Control

MicroHelp Inc.
404-516-0898
4359 Shallowford Industrial Parkway
Marietta, GE, USA 30066
Products: HighEdit

Microsoft
One Micosoft Way
Redmond, WA, USA 98052-6399
800-950-3535 USA
800-563-9048 Canada
206-936-8661 Other
Products: VB, VB Pro, Excel, Word, Project,

Micro System Options
206-868-5418
PO Box 95167
Seattle, WA, USA 98145-2167
Products: 3D Graphic Tools for VB

MotionWorks
800-800-8476
415-541-9333
415-541-0555 Fax
524 Second Street
San Francisco, CA, USA 94107
Products: Motion Works MediaShop

NCR Corporation
Information Products
2651 Satellite Blvd.
Duluth, GA, USA 30136-9711
Products: NICE

Pinnacle Publishing Inc.
800-231-1293
206-251-5057 Fax
PO Box 888
Kent, WA, USA
98035-0888
Products: Graphics Server SDK, Code Print Pro

Q+E Software
800-876-3103 Dept M010
919-859-2220

919-859-9334 Fax
5540 Centerview Drive, Suite 324
Raleigh, NC, USA 27606
Products: Q+E Multilink VB/2

Rainbow Imaging Inc.
212-794-2717
212-861-8145 Fax
460 East 79Street
New York, NY, USA 10021-1425
Products: Picture++

Raindrop Software
214-234-2611
833 Arapaho, Suite 104
Richardson, TX, USA, 75081
Products: Open Mail System

ReportSmith Inc.
800-446-3446
415-312-8673 Fax
2755 Campus Drive, Suite 205
San Mateo, CA, USA
94403
Products: ReportSmith

Sense8 Corporation
415-331-6318
415-331-9148 Fax
1001 Bridgeway, #477
Sausalito, CA, USA 94965
Products: WorldToolKit

Sequiter Software Inc.
403-437-2410
403-436-2999 Fax
Products: CodeBasic, CodeReporter

ShapeWare Corporation
800-446-3335 Ext 48Y
520 Pike Street, #1800
Seattle, WA, USA 98101
Products: Visio

Sheridan Software Systems
800-VBDirect
516-753-0985
516-753-3661 Fax
516-753-5452 BBS
71222.3522@compuserve.com
35 Pinelawn Road
Melville, NY USA 11747

Products: Data Widgets, VB Assist,

Smithware, Inc
800-828-7438
615-860-3500
615-868-5397 Fax
75470,546 Compuserve
590-5654 MCI
1052 Madison Square
Madison, TN, USA 37115
Products: Controls for Btrieve

Software Interphase Inc.
401-397-2340
401-397-6814 Fax
401-397-4601 BBS
82 Cucumber Hill Rd.
Foster, RI, USA 02825

SolutionSoft
408-736-1431
408-736-4013 Fax
75210.2214@compuserve.com
999 Evelyn Terrace West, Suite 86
Sunnyvale, CA 94086
Products: HelpBreeze, ViewerBreeze available soon

Speech Systems Inc.
303-938-1110
303-938-1874 Fax
2945 Center Green Court South
Boulder, CO, USA 80301-2275
Products: Phonetic Engine 400

SPSS Inc.
800-525-4971
444 North Michigan Avenue
Chicago, IL 60611
Products: SPSS Developer Kit

SQA Inc.
800-228-9922
617-932-3280 Fax
10 State Street
Woburn, MA, USA 01801
Products: SQA TeamTest

Stylus Innovation
617-621-9545
617-621-7862 Fax
One Kendall Square
Building 1500

Cambridge, MA, USA 02139
Products: Visual Voice

Sub Systems Inc.
800-447-6819
617-438-8901
617-438-0311 Fax
159 Main Street, #8C
Southam, MA, USA 02180
Products: TE Developer's Kit, ReportEase, Spell Time, ChartPro

SuccessWare
909-699-9657
909-695-5679 Fax
27349 Jefferson Avenue
Temecula, CA, USA 92590
Products: SixBase/VB

TeraTech
800-447-9120
301-977-2224
301-963-0436 Fax
301-963-7478 BBS 9600-N-8-1
3 Choke Cherry Rd, Suite 360
Rockville, MD, USA 20850
Products Dazzle/VB,

Turbo Toolware
602-497-4780
745 N. Gilbert Road
Ste. 124-125
Gilbert, AZ, USA 85234
Products Speltool VB

Unelko Corp.
602-991-7272
602-483-7674 Fax
7428 E Karen Drive
Scottsdale, AZ, USA, 85260
Products: Bridgit

Visual Tools
800-884-8665
913-599-6500
913-599-6597 Fax
CompuServe: 72204, 3521
15721 College Blvd
Lenexa, KS, USA 66219
Products: Formula One, VT-Speller

WallData Inc.
208-883-4777

206-885-9250 Fax
17769 NE 78th Place
Redmond, WA, USA 98052-4992
Products: Rumba SDK

Wang Labs
800-639-9264
508-967-1125 Fax
1 Industrial Avenue
Lowell, MA, USA 01851
Products: OPEN/Image

Watcom
800-265-4555
519-886-3700
519-747-4971 Fax
415 Phillip Street
Waterloo, ON, Canada N2L 3X2
Products: Watcom SQL

WhippleWare
800-241-8727
617-242-8727
617-241-8496 Fax
20 Cedar Street
Charleston, MA, USA 02129
Products:VB Compress

Wintertree Software Inc.
613-825-6271
CompuServe: 72060,3056
43 Rueter St.
Nepean, Ontario
Canada K2J 3Z9

Young Software Works
212-982-4127
212-673-1715 Fax
Compuserve 76703, 4343
PO Box 185, Cooper Station
New York City, NY, USA
10276-0185
Products: VB ProjectWorks

ZyLAB
800-544-6339
708-459-8000
100 Lexington Drive
Buffalo Grove, IL 60089
Products: ZyIndex

