

Using the Win32API\_PtrSafe.txt File

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Using the Win32API\_PtrSafe.txt File

Versions of Microsoft® Office and Microsoft Visual Basic® for Applications (VBA) prior to Microsoft Office 2010 and Visual Basic for Applications 7.0 (VBA 7) included the file, Win32API.txt, which facilitated making calls to the Microsoft Windows API. With the addition of 64-bit support in Office 2010, an update to this file is needed to support 64-bit API calls. Win32API\_PtrSafe.txt is a new version of Win32API.txt that supports API calls on both 32-bit and 64-bit versions of Windows.

Win32API\_PtrSafe.txt contains the following:

* 32-bit (x86) and 64-bit (x64) compatible Declare statements for the Windows API functions that were included in the original Win32API.txt file.
* Global constant declarations for the constants that the provided Declare statements use.
* Type declarations for the user-defined types (structures) that the provided Declare statements use.

You can copy the Declare statements and the corresponding type declarations directly into a module in your VBA project. After you paste the declaration for a Windows API function (and any associated constant and type declarations) into your application, you can call that routine as you would call any VBA function.

The Declare statements and type declarations are updated to use the LongPtr type and the PtrSafe keyword. Therefore, you can use these statements and declarations with the 32-bit (x86) version of Office 2010 and the 64-bit (x64) version of Office 2010. A few Declare statements and type declarations use the LongLong type, which is only available on 64-bit systems. These Declare statements are surrounded by conditional compilation statements that use the Win-64 conditional compilation constant. For example, the following code shows the GetTickCount64 function, which is only available on 64-bit systems:

#If Win64 Then

Declare PtrSafe Function GetTickCount64 Lib "kernel32" Alias "GetTickCount64" () As LongLong

#End If

The Declare statements in Win32API\_PtrSafe.txt are not compatible with versions of Microsoft Office prior to Office 2010. You can use the VBA7 conditional compilation constant to make a Microsoft Office document compatible with previous versions of Microsoft Office and Office 2010. For example, you can include the following code in your VBA project to enable calls to the SetTimer Windows function:

#If VBA7 Then

Declare PtrSafe Function SetTimer Lib "user32" (ByVal hWnd As LongPtr, ByVal nIDEvent As LongPtr, ByVal uElapse As Long, ByVal lpTimerFunc As LongPtr) As LongPtr

#Else

Declare Function SetTimer Lib "user32" (ByVal hWnd As Long, ByVal nIDEvent As Long, ByVal uElapse As Long, ByVal lpTimerFunc As Long) As Long

#End If

For more information about how to write portable VBA code by using the PtrSafe keyword and the LongPtr type in Office 2010, see the article [Compatibility Between the 32-bit and 64-bit Versions of Office 2010](http://msdn.microsoft.com/en-us/library/ee691831(office.14).aspx) (http://msdn.microsoft.com/en-us/library/ee691831(office.14).aspx).

Win32API\_PtrSafe.txt does not contain Declare statements for all functions in the Windows API and it does not contain any information about the behavior of the Windows API. For more information about the Windows API, see the [Microsoft Windows SDK](http://msdn.microsoft.com/en-us/windowsserver/bb980924.aspx) (http://msdn.microsoft.com/en-us/windowsserver/bb980924.aspx), which contains complete documentation for the Windows API. It is available free of charge on the [Microsoft Developer Network site](http://msdn.microsoft.com/default.aspx) (http://msdn.microsoft.com/default.aspx).

The Declare statements in this file are not compatible with Visual Basic 6 or previous versions.

**WARNING**Win32API\_PtrSafe.txt is too large to load directly into a single module in VBA. Attempting to load it directly into VBA causes an "Out of Memory" error message.

VBA cannot verify the data you pass to Windows API routines. Calling a Windows API routine with an invalid argument can result in unpredictable behavior. Your application may crash or hang. When experimenting with Windows API routines, save your work often.

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