

WinWrap Basic

The WinWrap Basic Language provides the core language definition. It is Visual Basic for Applications(TM) compatible.

WinWrap Basic Language

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Printed Documentation

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Polar Engineering and Consulting

Phone: 907-776-5509

FAX: 907-776-5508

Compuserve: 75240,331

Internet: 75240.331@compuserve.com

Groups

Declaration #Reference, #Uses, Attribute, Class Module, Code Module, Const, Declare, Deftype, Dim, Enum...End Enum, Function...End Function, Object Module, Option, Private, Property...End Property, Public, ReDim, Static, Sub...End Sub, Type...End Type. WithEvents

Data Type Any, Boolean, Byte, Currency, Date, Decimal, Double, Integer, Long, Object, PortInt, Single, String, String*n, Variant, obj type, user enum, user type.

Assignment Erase, Let, LSet, RSet, Set.

Flow Control Call, CallByName, Do...Loop, End, Exit, For...Next, For Each...Next, GoTo, If...Elseif...Else...End If, MacroRun, MacroRunThis, Select Case...End Select, Stop, While...Wend.

Error Handling Err, Error, On Error, Resume.

Conversion Array, CBool, CByte, CCur, CDate, CDec, CDbl, CInt, CLng, CSng, CStr, CVar, CVDDate, CVErr, Val.

Variable Info IsArray, IsDate, IsEmpty, IsError, IsMissing, IsNull, IsNumeric, IsObject, LBound, TypeName, UBound, VarType.

Constant Empty, False, Nothing, Null, True, Win16, Win32.

Math Abs, Atn, Cos, Exp, Fix, Int, Log, Randomize, Rnd, Round, Sgn, Sin, Sqr, Tan.

String Asc, AscB, AscW, Chr, ChrB, ChrW, Format, Hex, InStr, InStrB, InStrRev, LCase, Left, LeftB, Len, LenB, LTrim, Mid, MidB, Oct, Replace, Right, RightB, RTrim, Space, String, Str, StrComp, StrConv, StrReverse, Trim, UCase.

Object CreateObject, GetObject, Me, With...End With.

Time/Date Date, DateAdd, DateDiff, DatePart, DateSerial, DateValue, Day, Hour, Minute, Month, MonthName, Now, Second, Time, Timer, TimeSerial, TimeValue, Weekday, WeekdayName, Year.

File ChDir, ChDrive, Close, CurDir, Dir, EOF, FileAttr, FileCopy, FileDateTime, FileLen, FreeFile, Get, GetAttr, Input, Input, Kill, Line Input, Loc, Lock, LOF, MkDir, Name, Open, Print, Put, Reset, RmDir, Seek, Seek, SetAttr, Unlock, Write.

User Input Dialog, GetFilePath, InputBox, MsgBox.

User Dialog Begin Dialog...End Dialog, CancelButton, CheckBox, ComboBox, DropListBox, GroupBox, ListBox, OKButton, OptionButton, OptionGroup, Picture, PushButton, Text, TextBox.

Dialog Function Dialog Func, DlgControlId, DlgCount, DlgEnable, DlgEnd, DlgFocus, DlgListBoxArray, DlgName, DlgNumber, DlgSetPicture, DlgText, DlgType, DlgValue, DlgVisible.

DDE DDEExecute, DDEInitiate, DDEPoke, DDERequest, DDETerminate, DDETerminateAll.

Settings DeleteSetting, GetAllSettings, GetSetting, SaveSetting

Miscellaneous AboutWinWrapBasic, AppActivate, Attribute, Beep, CallersLine, Choose, Clipboard, Command, Debug.Print, DoEvents, Environ, Eval, IIf, MacroDir, QBColor, Rem, RGB, SendKeys, Shell, Wait.

Operator Operators: +, -, ^, *, /, \, Mod, +, -, &, =, <>, <, >, <=, >=, Like. Not, And, Or, Xor, Eqv, Imp, Is.

AboutWinWrapBasic Instruction

Syntax `AboutWinWrapBasic [Timeout]`

Group Miscellaneous

Description Show the WinWrap Basic about box.

Parameter	Description
-----------	-------------

Timeout This numeric value is the maximum number of seconds to show the about box. A value less than or equal to zero displays the about box until the user closes it. If this value is omitted then a three second timeout is used.

Example

```
Sub Main
    AboutWinWrapBasic
End Sub
```

Abs Function

Syntax `Abs (Num)`

Group Math

Description Return the absolute value.

Parameter	Description
-----------	-------------

Num Return the absolute value of this numeric value. If this value is **Null** then **Null** is returned.

Example

```
Sub Main
    Debug.Print Abs(9)      ' 9
    Debug.Print Abs(0)      ' 0
    Debug.Print Abs(-9)     ' 9
End Sub
```

Any Data Type

Group Data Type

Description Any variable expression (**Declare** only).

AppActivate Instruction

Syntax `AppActivate Title$`

-or-

`AppActivate TaskID`

Group Miscellaneous

Description Form 1: Activate the application top-level window titled *Title\$*. If no window by that title exists then the first window with at title that starts with *Title\$* is activated. If no window matches then an error occurs.

Form 2: Activate the application top-level window for task *TaskID*. If no window for that task exists then an error occurs.

Parameter	Description
-----------	-------------

Title\$ The name shown in the title bar of the window.

TaskID This numeric value is the task identifier.

See Also **SendKeys**, **Shell()**.

Example

```
Sub Main
    ' make ProgMan the active application
    AppActivate "Program Manager"
End Sub
```

Array Function

Syntax `Array([expr[, ...]])`

Group Conversion

Description Return a variant value array containing the *exprs*.

Example

```
Sub Main
    X = Array(0,1,4,9)
    Debug.Print X(2) ' 4
End Sub
```

Asc Function

Syntax `Asc(S$)`

Group String

Description Return the ASCII value.

Note: A similar function, AscB, returns the first byte in *S\$*. Another similar function, AscW, returns the Unicode number.

Parameter	Description
-----------	-------------

S\$ Return the ASCII value of the first char in this string value.

See Also `Chr$()`.

Example

```
Sub Main
    Debug.Print Asc("A") ' 65
End Sub
```

Atn Function

Syntax `Atn(Num)`

Group Math

Description Return the arc tangent.

Parameter	Description
-----------	-------------

Num Return the arc tangent of this numeric value. This is the number of radians. There are 2*Pi radians in a full circle.

Example

```
Sub Main
    Debug.Print Atn(1)*4 ' 3.1415926535898
End Sub
```

Attribute Definintion/Statement

Syntax `Attribute name = value`

Group Declaration

Description All attribute definitions and statements are ignored except for:

-

Public varname As Type

Attribute varname.VB_VarUserMemId = 0

Declares **Public** varname as the default property for a **class module** or **object module**.

-

Property [Get|Let|Set] propname (...)

Attribute propname.VB_UserMemId = 0

...

End Property

Declares **Property** proname as the default property for a **class module** or **object module**.

Beep Instruction

Syntax Beep

Group Miscellaneous

Description Sound the bell.

Example **Sub** Main
 Beep ' beep the bell

End Sub

Begin Dialog Definition

Syntax **Begin Dialog** **UserDialog** [X, Y,] DX, DY[, Title\$] _
 [, .dialogfunc]
 User **Dialog** Item
 [User **Dialog** Item]...

End Dialog

Group User Dialog

Description Define a **UserDialog** type to be used later in a **Dim As UserDialog** statement.

Parameter	Description
-----------	-------------

X	This numeric value is the distance from the left edge of the screen to the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font. If this is omitted then the dialog will be centered.
---	--

Y	This numeric value is the distance from the top edge of the screen to the top edge of the dialog box. It is measured in 1/12 ths of the average character width for the dialog's font. If this is omitted then the dialog will be centered.
---	---

DX	This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.
----	---

DY	This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.
----	--

Title\$	This string value is the title of the user dialog. If this is omitted then there is no title.
---------	---

dialogfunc	This is the function name that implements the DialogFunc for this UserDialog . If this is omitted then the UserDialog doesn't have a dialogfunc.
------------	---

User Dialog Item

One of: **CancelButton**, **CheckBox**, **ComboBox**, **DropListBox**, **GroupBox**, **ListBox**, **OKButton**, **OptionButton**, **OptionGroup**, **PushButton**, **Text**, **TextBox**.

See Also **Dim As UserDialog**.

Example **Sub** Main
 Begin Dialog **UserDialog** 200,120
 Text 10,10,180,15,"Please push the OK button"
 OKButton 80,90,40,20
 End Dialog
 Dim dlg **As** **UserDialog**
 Dialog dlg ' show dialog (wait for ok)

End Sub

Boolean Data Type

Group Data Type

Description A **True** or **False** value.

Byte Data Type

Group Data Type

Description An 8 bit unsigned integer value.

Call Instruction

Syntax `Call name[(arglist)]`

-or-

`name [arglist]`

Group Flow Control

Description Evaluate the *arglist* and call subroutine (or function) *name* with those values. Sub (or function) *name* must be previously defined by either a **Sub**, **Function** or **Property** definition. If *name* is a function then the result is discarded. If Call is omitted then *name* must be a subroutine and the *arglist* is not enclosed in parens.

See Also **Declare**, **Sub**.

Example `Sub Show(Title$,Value)`

`Debug.Print Title$;"=";Value`

`End Sub`

`Sub Main`

`Call Show("2000/9",2000/9) ' 222.222222222`

`Show "1<2",1<2 ' True`

`End Sub`

CallByName Instruction

Syntax `CallByName(Obj,ProcName,CallType,[expr[, ...]])`

Group Flow Control

Description Call an *Obj*'s method/property, *ProcName*, by name. Pass the *exprs* to the method/property.

Parameter	Description
-----------	-------------

Obj Call the method/property for this object reference.

ProcName This string value is the name of the method/property to be called.

CallType Type of method/property call. See table below.

expr These expressions are passed to the obj's method/property.

CallType	Value	Effect
----------	-------	--------

vbMethod 1 Call or evaluate the method.

vbGet 2 Evaluate the property's value.

vbLet 4 Assign the property's value.

vbSet 8 Set the property's reference.

Example `Sub Main`

`On Error Resume Next`

`CallByName Err, "Raise", vbMethod, 1`

`Debug.Print CallByName(Err, "Number", vbGet) ' 1`

`End Sub`

CallersLine Function

Syntax `CallersLine[(Depth)]`

Group Miscellaneous**Description** Return the caller's line as a text string.

The text format is: "[macroname|subname#linenum] linetext".

Parameter	Description
-----------	-------------

Depth This integer value indicates how deep into the stack to get the caller's line. If Depth = -1 then return the current line. If Depth = 0 then return the calling subroutine's current line, etc.. If Depth is greater than or equal to the call stack depth then a null string is returned. If this value is omitted then the depth is 0.

Example **Sub** Main

A

End Sub**Sub** A **Debug.Print** CallersLine "'[(untitled 1)|Main# 2] A"**End Sub**

CancelButton Dialog Item Definition

Syntax CancelButton X, Y, DX, DY[, .Field]**Group** User Dialog**Description** Define a cancel button item. Pressing the Cancel button from a **Dialog** instruction causes a run-time error. (**Dialog**() function call returns 0.)

Parameter	Description
-----------	-------------

X This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.

Y This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.

DX This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.

DY This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.

Field This identifier is the name of the field. The *dialogfunc* receives this name as *string*. If this is omitted then the field name is "Cancel".

See Also **Begin Dialog, Dim As UserDialog.****Example** **Sub** Main **Begin Dialog UserDialog** 200,120 **Text** 10,10,180,30,"Please push the Cancel button" **OKButton** 40,90,40,20 **CancelButton** 110,90,60,20 **End Dialog** **Dim** dlg As **UserDialog** **Dialog** dlg ' show dialog (wait for cancel) **Debug.Print** "Cancel was not pressed"**End Sub**

CBool Function

Syntax CBool (Num| \$)**Group** Conversion**Description** Convert to a **boolean** value. Zero converts to **False**, while all other values convert to **True**.

Parameter	Description
-----------	-------------

Num|\$ Convert a number or string value to a boolean value.

```
Example      Sub Main
    Debug.Print CBool(-1) 'True
    Debug.Print CBool(0)  'False
    Debug.Print CBool(1)  'True
End Sub
```

CByte Function

Syntax CByte(*Num* | \$)

Group Conversion

Description Convert to a **byte** value.

Parameter	Description
-----------	-------------

Num|\$ Convert a number or string value to a byte value.

```
Example      Sub Main
    Debug.Print CByte(1.6) ' 2
End Sub
```

CCur Function

Syntax CCur(*Num* | \$)

Group Conversion

Description Convert to a **currency** value.

Parameter	Description
-----------	-------------

Num|\$ Convert a number or string value to a currency value.

```
Example      Sub Main
    Debug.Print CCur("1E6") ' 1000000
End Sub
```

CDate Function

Syntax CDate(*Num* | \$)

-or-

CVDate(*Num* | \$)

Group Conversion

Description Convert to a **date** value.

Parameter	Description
-----------	-------------

Num|\$ Convert a number or string value to a date value.

```
Example      Sub Main
    Debug.Print CDate(2) ' 1/1/00
End Sub
```

CDbl Function

Syntax CDbl(*Num* | \$)

Group Conversion

Description Convert to a **double** precision real.

Parameter	Description
-----------	-------------

Num|\$ Convert a number or string value to a double precision real.


```

Example      Sub Main
                Debug.Print CDb1("1E6") ' 1000000
End Sub

```

CDec Function

Syntax CDec (*Num* | *\$*)

Group Conversion

Description Win32 only. Convert to a **decimal** (96 bit scaled real).

Parameter	Description
-----------	-------------

Num | *\$* Convert a number or string value to a 96 bit scaled real.

```

Example      Sub Main
                Debug.Print CDec("1E16")+0.1 ' 10000000000000000.1
End Sub

```

ChDir Instruction

Syntax ChDir *Dir*\$

Group File

Description Change the current directory to *Dir*\$.

Parameter	Description
-----------	-------------

Dir\$ This string value is the path and name of the directory.

See Also ChDrive, CurDir\$().

```

Example      Sub Main
                ChDir "C:\"
                Debug.Print CurDir$() ' "C:\"
End Sub

```

ChDrive Instruction

Syntax ChDrive *Drive*\$

Group File

Description Change the current drive to *Drive*\$.

Parameter	Description
-----------	-------------

Drive\$ This string value is the drive letter.

See Also ChDir, CurDir\$().

```

Example      Sub Main
                ChDrive "B"
                Debug.Print CurDir$() ' "B:\"
End Sub

```

CheckBox Dialog Item Definition

Syntax CheckBox *X*, *Y*, *DX*, *DY*, *Title*\$, *.Field* [, *Options*]

Group User Dialog

Description Define a checkbox item.

Parameter	Description
-----------	-------------

X This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.

Choose Function

Y This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.

DX This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.

DY This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.

Field The value of the check box is accessed via this field. Unchecked is 0, checked is 1 and grayed is 2.

Options This numeric value controls the type of check box. Choose one value from following table. (If this numeric value omitted then zero is used.)

Option	Description
0	Check box is either check or unchecked.
1	Check box is either check, unchecked or grayed, and it switches between checked and unchecked when clicked.
2	Check box is either check, unchecked or grayed, and it cycles through all three states as the button is clicked.

See Also [Begin Dialog](#), [Dim As UserDialog](#).

```
Example Sub Main
    Begin Dialog UserDialog 200,120
        Text 10,10,180,15,"Please push the OK button"
        CheckBox 10,25,180,15,"%Check box",.Check
        OKButton 80,90,40,20
    End Dialog
    Dim dlg As UserDialog
    dlg.Check = 1
    Dialog dlg ' show dialog (wait for ok)
    Debug.Print dlg.Check
End Sub
```

Choose Function

Syntax `Choose(Index, expr[, ...])`

Group Flow Control

Description Return the value of the *expr* indicated by *Index*.

Parameter	Description
<i>Index</i>	The numeric value indicates which <i>expr</i> to return. If this value is less than one or greater than the number of <i>exprs</i> then Null is returned.
<i>expr</i>	All expressions are evaluated.

See Also [If](#), [Select Case](#), [IIf\(\)](#).

```
Example Sub Main
    Debug.Print Choose(2,"Hi","there") '"there"
End Sub
```

Chr\$ Function

Syntax `Chr[$] (Num)`

Group String

Description Return a one char string for the ASCII value.

Note: A similar function, [ChrB](#), returns a single byte ASCII string. Another similar function, [ChrW](#), returns a single char Unicode string.

Parameter	Description
<i>Num</i>	Return one char string for this ASCII numeric value.

See Also **Asc()**.

Example **Sub** Main
 Debug.Print Chr\$(48) & ""0"
End Sub

CInt Function

Syntax CInt (Num| \$)

Group Conversion

Description Convert to a 16 bit **integer**. If Num|\$ is too big (or too small) to fit then an overflow error occurs.

Parameter	Description
-----------	-------------

Num \$	Convert a number or string value to a 16 bit integer.
--------	---

Example **Sub** Main
 Debug.Print CInt(1.6) & " 2"
End Sub

Class Module

Group Declaration

Description A class *module* implements an ActiveX Automation object.

- Has a set of **Public procedures** accessible from other *macros* and *modules*.
- These public symbols are accessed via an object variable.
- Public **Consts**, **Types**, arrays, fixed length strings are not allowed.
- A class module is similar to a **object module** except that no instance is automatically created.
- To create an instance use:

```
Dim Obj As classname
Set Obj = New classname
```

See Also **Code Module, Object Module, Uses.**

Example 'A.WWB
 '#Uses "File.CLS"
Sub Main
 Dim File As **New** File
 File.Attach "C:\AUTOEXEC.BAT"
 Debug.Print File.ReadLine
End Sub

```
'File.CLS
'File|New Module|Class Module
'Edit|Properties|Name=File
Option Explicit
Dim FN As Integer
Public Sub Attach(Filename As String)
    FN = FreeFile
    Open Filename For Input As #FN
End Sub
Public Sub Detach()
    If FN <> 0 Then Close #FN
    FN = 0
```

Class_Initialize Sub

```
End Sub
Public Function ReadLine() As String
    Line Input #FN,ReadLine
End Function

Private Sub Class_Initialize()
    Debug.Print "Class_Initialize"
End Sub

Private Sub Class_Terminate()
    Debug.Print "Class_Terminate"
    Detach
End Sub
```

Class_Initialize Sub

Syntax Private Sub Class_Initialize()

...

Group Declaration

Description **Class module** initialization subroutine. Each time a new instance is created for a class module the Class_Initialize sub is called. If Class_Initialize is not defined then no special initialization occurs.

See Also **Code Module**, **Class_Terminate**.

Class_Terminate Sub

Syntax Private Sub Class_Terminate()

...

Group Declaration

Description **Class module** termination subroutine. Each time an instance is destroyed for a class module the Class_Terminate sub is called. If Class_Terminate is not defined then no special termination occurs.

See Also **Code Module**, **Class_Initialize**.

Clipboard Instruction/Function

Syntax Clipboard *Text\$*

-or-

Clipboard[\$] [()]

Group Miscellaneous

Description Form 1: Set the clipboard to *Text\$*. This is like the Edit|Copy menu command.

Form 2: Return the text in the clipboard.

Parameter	Description
-----------	-------------

<i>Text\$</i>	Put this string value into the clipboard.
---------------	---

Example Sub Main
Debug.Print Clipboard\$()

```
Clipboard "Hello"
Debug.Print Clipboard$() "Hello"
End Sub
```

CLng Function

Syntax CLng (*Num* | *\$*)

Group Conversion

Description Convert to a 32 bit **long** integer. If *Num*|*\$* is too big (or too small) to fit then an overflow error occurs.

Parameter	Description
<i>Num</i> <i>\$</i>	Convert a number or string value to a 32 bit integer.

Example

```
Sub Main
    Debug.Print CLng(1.6) ' 2
End Sub
```

Close Instruction

Syntax Close [[#]*StreamNum*] [, ...]

Group File

Description Close *StreamNums*.

Parameter	Description
<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros. If this is omitted then all open streams for the current <i>macro/module</i> are closed.

See Also Open, Reset.

Example

```
Sub Main
    ' read the first line of XXX and print it
    Open "XXX" For Input As #1
    Line Input #1,L$
    Debug.Print L$
    Close #1
End Sub
```

Code Module

Group Declaration

Description A *Code module* implements a code library.

- Has a set of **Public procedures** accessible from other *macros* and *modules*.
- The public symbols are accessed directly.

See Also Class Module, Object Module, Uses.

Example

```
'A.WWB
'#Uses "Module1.BAS"
Sub Main
    Debug.Print Value "Hello"
End Sub
```

```
'Module1.BAS
'File|New Module|Code Module
'Edit|Properties|Name=Module1
Option Explicit
```

```
Private mValue As String
Property Get Value() As String
    Value = mValue
End Property
'this sub is called when the module is first loaded
Private Sub Main
    mValue = "Hello"
End Sub
```

ComboBox Dialog Item Definition

Syntax `ComboBox X, Y, DX, DY, StrArray$(), .Field$(, Options]`

Group User Dialog

Description Define a combobox item. Combo boxes combine the functionality of an edit box and a list box.

Parameter	Description
X	This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.
Y	This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.
DX	This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.
DY	This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.
StrArray\$()	This one-dimensional array of strings establishes the list of choices. All the non-null elements of the array are used.
Field\$	The value of the combo box is accessed via this field. This is the text in the edit box.
Options	This numeric value controls the type of combo box. Choose one value from following table. (If this numeric value omitted then zero is used.)

Option	Description
0	List is not sorted.
2	List is sorted.

See Also **Begin Dialog, Dim As UserDialog.**

Example **Sub Main**

```
Dim combos$(3)
combos$(0) = "Combo 0"
combos$(1) = "Combo 1"
combos$(2) = "Combo 2"
combos$(3) = "Combo 3"
Begin Dialog UserDialog 200,120
    Text 10,10,180,15,"Please push the OK button"
    ComboBox 10,25,180,60,combos$( ),.combo$
    OKButton 80,90,40,20
End Dialog
Dim dlg As UserDialog
dlg.combo$ = "none"
Dialog dlg ' show dialog (wait for ok)
Debug.Print dlg.combo$
```

End Sub

Command\$ Function

Syntax `Command[$]`

Group Miscellaneous**Description** Contains the value of the **MacroRun** parameters.**See Also** **MacroRun**.**Example** **Sub** Main

```

    Debug.Print "Command line parameter is: ";
    Debug.Print Command$;
    Debug.Print ""

```

End Sub

Const Definition

Syntax [| **Private** | **Public**] _
Const *name*[*type*] [*As Type*] = *expr*[, ...]**Group** Declaration**Description** Define *name* as the value of *expr*. The *expr* may be refer other constants or built-in functions. If the type of the constants is not specified, the type of *expr* is used.Constants defined outside a **Sub**, **Function** or **Property** block are available in the entire *macro/module*.**Private** is assumed if neither **Private** or **Public** is specified.Note: Const statement in a **Sub**, **Function** or **Property** block may not use **Private** or **Public**.**Example** **Sub** Main

```

    Const Pi = 4*Atn(1), e = Exp(1)
    Debug.Print Pi ' 3.14159265358979
    Debug.Print e ' 2.71828182845905

```

End Sub

Cos Function

Syntax Cos (*Num*)**Group** Math**Description** Return the cosine.

Parameter	Description
-----------	-------------

<i>Num</i>	Return the cosine of this numeric value. This is the number of radians. There are 2*Pi radians in a full circle.
------------	--

Example **Sub** Main

```

    Debug.Print Cos(1) ' 0.54030230586814

```

End Sub

CreateObject Function

Syntax CreateObject (*Class*\$)**Group** Object**Description** Create a new object of type *Class*\$. Use **Set** to assign the returned object to an object variable.

Parameter	Description
-----------	-------------

<i>Class</i> \$	This string value is the application's registered class name. If this application is not currently active it will be started.
-----------------	---

See Also **Objects.**

Example **Sub Main**

```
Dim App As Object
Set App = CreateObject("WinWrap.CppDemoApplication")
App.Move 20,30 ' move icon to 20,30
Set App = Nothing
App.Quit      ' run-time error (no object)
```

End Sub

CSng Function

Syntax CSng(*Num* | *\$*)

Group Conversion

Description Convert to a **single** precision real. If *Num* | *\$* is too big (or too small) to fit then an overflow error occurs.

Parameter	Description
-----------	-------------

<i>Num</i> <i>\$</i>	Convert a number or string value to a single precision real.
------------------------	--

Example **Sub Main**

```
Debug.Print CSng(Sqr(2)) ' 1.4142135381699
```

End Sub

CStr Function

Syntax CStr(*Num* | *\$*)

Group Conversion

Description Convert to a **string**.

Parameter	Description
-----------	-------------

<i>Num</i> <i>\$</i>	Convert a number or string value to a string value.
------------------------	---

Example **Sub Main**

```
Debug.Print CStr(Sqr(2)) '"1.4142135623731"
```

End Sub

CurDir\$ Function

Syntax CurDir[\$] ([*Drive* \$])

Group File

Description Return the current directory for *Drive* \$.

Parameter	Description
-----------	-------------

<i>Drive</i> \$	This string value is the drive letter. If this is omitted or null then return the current directory for the current drive.
-----------------	--

See Also **ChDir, ChDrive.**

Example **Sub Main**

```
Debug.Print CurDir$()
```

End Sub

Currency Data Type

Group Data Type

Description A 64 bit fixed point real. (A twos complement binary value scaled by 10000.)

CVar Function

Syntax CVar (Num| \$)

Group Conversion

Description Convert to a **variant** value.

Parameter	Description
-----------	-------------

Num \$	Convert a number or string value (or object reference) to a variant value.
--------	--

Example

```
Sub Main
    Debug.Print CVar(Sqr(2)) ' 1.4142135623731
End Sub
```

CVErr Function

Syntax CVErr (Num| \$)

Group Conversion

Description Convert to a **variant** that contains an error code. An error code can't be used in expressions.

Parameter	Description
-----------	-------------

Num \$	Convert a number or string value to an error code.
--------	--

See Also IsError.

Example

```
Sub Main
    Debug.Print CVErr(1) ' Error 1
End Sub
```

Date Data Type

Group Data Type

Description A 64 bit real value. The whole part represents the date, while the fractional part is the time of day. (December 30, 1899 = 0.) Use #date# as a literal date value in an expression.

Date Function

Syntax Date[\$]

Group Time/Date

Description Return today's date as a **date** value.

See Also Now, Time, Timer.

Example

```
Sub Main
    Debug.Print Date ' example: 1/1/1995
End Sub
```

DateAdd Function

Syntax DateAdd(interval, number, dateexpr)

Group Time/Date

Description Return a **date** value a number of intervals from another date.

Parameter	Description
-----------	-------------

interval	This string value indicates which kind of interval to add.
----------	--

number	Add this many intervals. Use a negative value to get an earlier date.
--------	---

dateexpr Calculate the new date relative to this date value. If this value is **Null** then **Null** is returned.

Interval	Description
----------	-------------

yyyy	Year
q	Quarter
m	Month
d	Day
w	Weekday
ww	Week
h	Hour
n	Minute
s	Second

See Also DateDiff, DatePart.

Example Sub Main

```
Debug.Print DateAdd("yyyy",1,#1/1/2000#) '1/1/2001
```

End Sub

DateDiff Function

Syntax DateDiff(*interval*, *dateexpr1*, *dateexpr2*)

Group Time/Date

Description Return the number of intervals between two dates.

Parameter	Description
-----------	-------------

interval This string value indicates which kind of interval to subtract.

dateexpr1 Calculate the from this date value to dateexpr2. If this value is **Null** then **Null** is returned.

dateexpr2 Calculate the from dateexpr1 to this date value. If this value is **Null** then **Null** is returned.

Interval	Description
----------	-------------

yyyy	Year
q	Quarter
m	Month
d	Day
w	Weekday
ww	Week
h	Hour
n	Minute
s	Second

See Also DateAdd, DatePart.

Example Sub Main

```
Debug.Print DateDiff("yyyy",#1/1/1990#,#1/1/2000#) ' 10
```

End Sub

DatePart Function

Syntax DatePart(*interval*, *dateexpr*)

Group Time/Date

Description Return the number from the date corresponding to the interval.

Parameter	Description
-----------	-------------

interval This string value indicates which kind of interval to extract.

dateexpr Get the interval from this date value. If this value is **Null** then **Null** is returned.

Interval	Description (return value range)
----------	----------------------------------

yyyy	Year (100-9999)
q	Quarter (1-4)
m	Month (1-12)

d Day (1-366)
w Weekday (1-7)
ww Week (1-53)
h Hour (0-23)
n Minute (0-59)
s Second (0-59)

See Also DateAdd, DateDiff.

Example Sub Main
Debug.Print DatePart("yyyy",#1/1/2000#) ' 2000
End Sub

DateSerial Function

Syntax DateSerial(*Year*, *Month*, *Day*)

Group Time/Date

Description Return a date value.

Parameter	Description
-----------	-------------

<i>Year</i>	This numeric value is the year (0 to 9999). (0 to 99 are interpreted by the operating system.)
-------------	--

<i>Month</i>	This numeric value is the month (1 to 12).
--------------	--

<i>Day</i>	This numeric value is the day (1 to 31).
------------	--

See Also DateValue, TimeSerial, TimeValue.

Example Sub Main
Debug.Print DateSerial(2000,7,4) '7/4/2000
End Sub

DateValue Function

Syntax DateValue(*Date\$*)

Group Time/Date

Description Return the day part of the date encoded as a string.

Parameter	Description
-----------	-------------

<i>Date\$</i>	Convert this string value to the day part of date it represents.
---------------	--

See Also DateSerial, TimeSerial, TimeValue.

Example Sub Main
Debug.Print DateValue("1/1/2000 12:00:01 AM")
'1/1/2000
End Sub

Day Function

Syntax Day(*dateexpr*)

Group Time/Date

Description Return the day of the month (1 to 31).

Parameter	Description
-----------	-------------

<i>dateexpr</i>	Return the day of the month for this date value. If this value is Null then Null is returned.
-----------------	---

See Also Date(), Month(), Weekday(), Year().

Example Sub Main
Debug.Print Day(#1/1/1900#) ' 1
Debug.Print Day(#1/2/1900#) ' 2
End Sub

DDEExecute Instruction

Syntax DDEExecute *ChanNum*, *Command\$*[, *Timeout*]

Group DDE

Description Send the DDE Execute *Command\$* string via DDE *ChanNum*.

Parameter	Description
<i>ChanNum</i>	This is the channel number returned by the DDEInitiate function. Up to 10 channels may be used at one time.
<i>Command\$</i>	Send this command value to the server application. The interpretation of this value is defined by the server application.
<i>Timeout</i>	The command will generate an error if the number of seconds specified by the timeout is exceeded before the command has completed. The default is five seconds.

Example

```

Sub Main
    ChanNum = DDEInitiate("PROGMAN", "PROGMAN")
    DDEExecute ChanNum, "[CreateGroup(XXX)]"
    DDETerminate ChanNum

```

End Sub

DDEInitiate Function

Syntax DDEInitiate(*App\$*, *Topic\$*)

Group DDE

Description Initiate a DDE conversation with *App\$* using *Topic\$*. If the conversation is successfully started then the return value is a channel number that can be used with other DDE instructions and functions.

Parameter	Description
<i>App\$</i>	Locate this server application.
<i>Topic\$</i>	This is the server application's topic. The interpretation of this value is defined by the server application.

Example

```

Sub Main
    ChanNum = DDEInitiate("PROGMAN", "PROGMAN")
    DDEExecute ChanNum, "[CreateGroup(XXX)]"
    DDETerminate ChanNum

```

End Sub

DDEPoke Instruction

Syntax DDEPoke *ChanNum*, *Item\$*, *Data\$*[, *Timeout*]

Group DDE

Description Poke *Data\$* to the *Item\$* via DDE *ChanNum*.

Parameter	Description
<i>ChanNum</i>	This is the channel number returned by the DDEInitiate function. Up to 10 channels may be used at one time.
<i>Item\$</i>	This is the server application's item. The interpretation of this value is defined by the server application.
<i>Data\$</i>	Send this data value to the server application. The interpretation of this value is defined by the server application.
<i>Timeout</i>	The command will generate an error if the number of seconds specified by the timeout is exceeded before the command has completed. The default is five seconds.

Example

```

Sub Main
    ChanNum = DDEInitiate("PROGMAN", "PROGMAN")
    DDEPoke ChanNum, "Group", "XXX"

```

```

    DDETerminate ChanNum
End Sub

```

DDERequest\$ Function

Syntax DDERequest[\$] (*ChanNum*, *Item\$*[, *Timeout*])

Group DDE

Description Request information for *Item\$*. If the request is not satisfied then the return value will be a null string.

Parameter	Description
<i>ChanNum</i>	This is the channel number returned by the DDEInitiate function. Up to 10 channels may be used at one time.
<i>Item\$</i>	This is the server application's item. The interpretation of this value is defined by the server application.
<i>Timeout</i>	The command will generate an error if the number of seconds specified by the timeout is exceeded before the command has completed. The default is five seconds.

Example

```

Sub Main
    ChanNum = DDEInitiate ("PROGMAN", "PROGMAN")
    Debug.Print DDERequest$ (ChanNum, "Groups")
    DDETerminate ChanNum

```

```
End Sub
```

DDETerminate Instruction

Syntax DDETerminate *ChanNum*

Group DDE

Description Terminate DDE *ChanNum*.

Parameter	Description
<i>ChanNum</i>	This is the channel number returned by the DDEInitiate function. Up to 10 channels may be used at one time.

Example

```

Sub Main
    ChanNum = DDEInitiate ("PROGMAN", "PROGMAN")
    DDEExecute ChanNum, "[CreateGroup (XXX) ]"
    DDETerminate ChanNum

```

```
End Sub
```

DDETerminateAll Instruction

Syntax DDETerminateAll

Group DDE

Description Terminate all open DDE channels.

Example

```

Sub Main
    ChanNum = DDEInitiate ("PROGMAN", "PROGMAN")
    DDEExecute ChanNum, "[CreateGroup (XXX) ]"
    DDETerminateAll

```

```
End Sub
```

Debug Object

Syntax Debug.Print [*expr*[; ...][;]]

Group Miscellaneous

Description Print the *expr*(s) to the output window. Use ; to separate expressions. A *num* is it automatically converted to a string before printing (just like **Str\$()**). If the instruction does not end with a ; then a newline is printed at the end.

Example

```
Sub Main
    X = 4
    Debug.Print "X/2=";X/2 ' 2
    Debug.Print "Start..."; ' don't print a newline
    Debug.Print "Finish" ' print a newline
End Sub
```

Decimal Data Type

Group Data Type

Description Win32 only. A 96 bit scaled real value. Decimal is not a valid variable type, but **Variant** variables can contain decimal values (see **CDec**). A decimal number is of the form: s*m*10^{-p} where

- s - sign (+1 or -1)
- m - mantissa, unsigned binary value of 96 bits (0 to 79,228,162,514,264,337,593,543,950,335)
- p - scaling power (0 to +28)

Declare Definition

Syntax [| **Private** | **Public**] _
 Declare **Sub** *name* Lib "dll name"
 [Alias "module name"] [(*param*[, ...])])
 -or-
 [| **Private** | **Public**] _
 Declare **Function** *name*[*type*] Lib "dll name"
 [Alias "module name"] [(*param*[, ...])] [As *type*()]

Group Declaration

Description Interface to a DLL defined subroutine or function. The values of the calling *arglist* are assigned to the *params*.

Declare defaults to **Public** if neither **Private** or **Public** is specified.

WARNING! Be very careful when declaring DLL subroutines or functions. If you make a mistake and declare the parementers or result incorrectly then Windows might halt. Save any open documents before testing new DLL declarations.

Err.LastDLLError returns the error code for that last DLL call (Windows 32 bit versions only).

Parameter	Description
<i>name</i>	This is the name of the subroutine or function being defined. If Alias "module name" is omitted then this is the module name, too.
"dll name"	This is the DLL file where the module's code is.
"module name"	This is the name of the module in the DLL file. If this is #number then it is the ordinal number of the module. If it is omitted then <i>name</i> is the module name.

The DLL is searched for the specified module name. For Win16, this is the only module name checked. For Win32, if this module exists, it is used. All As String parameters are converted from Unicode to ASCII prior to calling the DLL and from ASCII to Unicode afterwards. (Use "Unicode:module name" to prevent ASCII to Unicode conversion.)

If the module does not exist, one or two other module names are tried:

1) For Windows NT only: The module name with a "W" appended is tried. All As String parameters are passed as Unicode to calling the DLL.

2) For Windows NT and Windows 95: The module name with an "A" appended is tried. All As String parameters are converted from Unicode to ASCII prior to calling the DLL and from ASCII to Unicode afterwards.

If none of these module names is found a run-time error occurs.

params A list of zero or more *params* that are used by the DLL subroutine or function. (Note: A ByVal string's value may be modified by the DLL.)

See Also **Function, Sub, Call.**

Example 'Win16 example

```
Declare Function GetActiveWindow% Lib "user" ()
Declare Function GetWindowTextLength% Lib "user" _
    (ByVal hwnd%)
Declare Sub GetWindowText Lib "user" _
    (ByVal hwnd%, ByVal lpsz$, ByVal cbMax%)
```

```
Function ActiveWindowTitle$()
    ActiveWindow = GetActiveWindow()
    TitleLen = GetWindowTextLength(ActiveWindow)
    Title$ = Space$(TitleLen)
    GetWindowText ActiveWindow, Title$, TitleLen+1
    ActiveWindowTitle$ = Title$
```

End Function

```
Sub Main
    Debug.Print ActiveWindowTitle$()
End Sub
```

'Win32 example

```
Declare Function GetActiveWindow& Lib "user32" ()
Declare Function GetWindowTextLengthA& Lib "user32" _
    (ByVal hwnd&)
Declare Sub GetWindowTextA Lib "user32" _
    (ByVal hwnd&, ByVal lpsz$, ByVal cbMax&)
```

```
Function ActiveWindowTitle$()
    ActiveWindow = GetActiveWindow()
    TitleLen = GetWindowTextLengthA(ActiveWindow)
    Title$ = Space$(TitleLen)
    GetWindowTextA ActiveWindow, Title$, TitleLen+1
    ActiveWindowTitle$ = Title$
```

End Function

```
Sub Main
    Debug.Print ActiveWindowTitle$()
End Sub
```

Def Definition

Syntax Def{Bool|Cur|Date|Db1|Int|Lng|Obj|Sng|Str|Var} _
 letterrange[, ...]

Group Declaration**Description** Define untyped variables as:

- DefBool - **Boolean**
- DefByte - **Byte**
- DefCur - **Currency**
- DefDate - **Date**
- DefDbl - **Double**
- DefInt - **Integer**
- DefLng - **Long**
- DefObj - **Object**
- DefSng - **Single**
- DefStr - **String**
- DefVar - **Variant**

Parameter	Description
letterrange	letter, or letter-letter: A letter is one of A to Z. When letter-letter is used, the first letter must be alphabetically before the second letter. Variable names that begin with a letter in this range default to declared type.

If a variable name begins with a letter not specific in any letterrange then the variable is a **Variant**. The letterranges are not allowed to overlap.

See Also **Option.**

Example

```
DefInt A,C-W,Y' integer
DefBool B      ' boolean
DefStr X       ' string
               ' all others are variant
```

```
Sub Main
    B = 1          ' B is an boolean
    Debug.Print B ' True
    X = "A"        ' X is a string
    Debug.Print X ' "A"
    Z = 1          ' Z is a variant (anything)
    Debug.Print Z ' 1
    Z = "Z"
    Debug.Print Z ' "Z"
End Sub
```

DeleteSetting Instruction

Syntax DeleteSetting *AppName\$, Section\$[, Key\$]***Group Settings**

Description Delete the settings for *Key* in *Section* in project *AppName*. Win16 and Win32s store settings in a .ini file named *AppName*. Win32 stores settings in the registration database.

Parameter	Description
-----------	-------------

AppName\$ This string value is the name of the project which has this *Section* and *Key*.

Section\$ This string value is the name of the section of the project settings.

Key\$ This string value is the name of the key in the section of the project settings. If this is omitted then delete the entire section.


```
Example      Sub Main
    SaveSetting "MyApp", "Font", "Size", 10
    DeleteSetting "MyApp", "Font", "Size"
End Sub
```

Dialog Instruction/Function

Syntax Dialog *dialogvar*[, *default*]
-or-
Dialog(*dialogvar*[, *default*])

Group User Input

Description Display the dialog associated with *dialogvar*. The initial values of the dialog fields are provided by *dialogvar*. If the **OK button** or any **push button** is pressed then the fields in dialog are copied to the *dialogvar*. The Dialog() function returns a value indicating which button was pressed. (See the result table below.)

Parameter	Description
<i>dlgvar</i>	This variable that holds the values of the fields in a dialog. Use <i>.field</i> to access individual fields in a dialog variable.
<i>default</i>	This numeric value indicates which button is the default button. (Pressing the Enter key on a non-button pushes the default button.) Use -2 to indicate that there is no default button. Other possible values are shown the result table below. If this value is omitted then the first PushButton , OKButton or CancelButton is the default button.

Result	Description
-1	OK button was pressed.
0	Cancel button was pressed.
>0	Nth push button was pressed.

See Also Begin Dialog, Dim As UserDialog.

```
Example      Sub Main
    Begin Dialog UserDialog 200,120
        Text 10,10,180,15,"Please push the OK button"
        OKButton 80,90,40,20
    End Dialog
    Dim dlg As UserDialog
    Dialog dlg ' show dialog (wait for ok)
End Sub
```

DialogFunc Prototype

Syntax Function dialogfunc(*DlgItem*%, *Action*%, *SuppValue*%) _
As Boolean
Select Case *Action*%
Case 1 ' **Dialog** box initialization
...
Case 2 ' Value changing or button pressed
...
Case 3 ' **TextBox** or **ComboBox** text changed
...
Case 4 ' Focus changed
...
Case 5 ' Idle
...

```
Case 6 ' Function key
```

```
...
```

```
End Select
```

```
End Function
```

Group Dialog Function

Description A *dialogfunc* implements the dynamic dialog capabilities.

Parameter	Description
<i>DlgItem</i>	This string value is the name of the user dialog item's <i>field</i> .
<i>Action</i>	This numeric value indicates what action the dialog function is being asked to do.
<i>SuppValue</i>	This numeric value provides additional information for some actions.

Action	Description
1	Dialog box initialization. <i>DlgItem</i> is a null string. <i>SuppValue</i> is the dialog's window handle. Set <i>dialogfunc</i> = True to terminate the dialog.
2	CheckBox , DropListBox , ListBox or OptionGroup : <i>DlgItem</i> 's value has changed. <i>SuppValue</i> is the new value.
	CancelButton , OKButton or PushButton : <i>DlgItem</i> 's button was pushed. <i>SuppValue</i> is meaningless. Set <i>dialogfunc</i> = True to prevent the dialog from closing.
3	ComboBox or TextBox : <i>DlgItem</i> 's text changed and losing focus. <i>SuppValue</i> is the number of characters.
4	Item <i>DlgItem</i> is gaining focus. <i>SuppValue</i> is the item that is losing focus. (The first item is 0, second is 1, etc.)
5	Idle processing. <i>DlgItem</i> is a null string. <i>SuppValue</i> is zero. Set <i>dialogfunc</i> = True to continue receiving idle actions.
6	Function key (F1-F24) was pressed. <i>DlgItem</i> has the focus. <i>SuppValue</i> is the function key number and the shift/control/alt key state.

Regular function keys range from 1 to 24.

Shift function keys have &H100 added.

Control function keys have &H200 added.

Alt function keys have &H400 added.

(Alt-F4 closes the dialog and is never passed to the Dialog Function.)

See Also **Begin Dialog.**

Example **Sub Main**

```
Begin Dialog UserDialog 200,120,.DialogFunc
  Text 10,10,180,15,"Please push the OK button"
  TextBox 10,40,180,15,.Text
  OKButton 30,90,60,20
  PushButton 110,90,60,20,"&Hello"
```

```
End Dialog
```

```
Dim dlg As UserDialog
```

```
Debug.Print Dialog(dlg)
```

```
End Sub
```

```
Function DialogFunc%(DlgItem$, Action%, SuppValue%)
```

```
  Debug.Print "Action=";Action%
```

```
  Debug.Print DlgItem$;"=""";DlgText$(DlgItem$);""""
```

```
  Debug.Print "SuppValue=";SuppValue%
```

```
  Select Case Action%
```

```
    Case 1 ' Dialog box initialization
```

```
      Beep
```

```
    Case 2 ' Value changing or button pressed
```

```
      If DlgItem$ = "Hello" Then
```

```
        MsgBox "Hello"
```

```
        DialogFunc% = True 'do not exit the dialog
```

```
      End If
```

```

Case 4 ' Focus changed
    Debug.Print "DlgFocus="";DlgFocus();""
Case 6 ' Function key
    If SuppValue And &H100 Then Debug.Print "Shift-";
    If SuppValue And &H200 Then Debug.Print "Ctrl-";
    If SuppValue And &H400 Then Debug.Print "Alt-";
    Debug.Print "F" & (SuppValue And &HFF)
End Select
End Function

```

Dim Definition

Syntax Dim [**WithEvents**] *name*[*type*][([*dim*[, ...]])][*As* [*New*] *type*][, ...]

Group Declaration

Description Dimension var array(s) using the *dims* to establish the minimum and maximum index value for each dimension. If the *dims* are omitted then a scalar (single value) variable is defined. A dynamic array is declared using () without any *dims*. It must be **ReDimensioned** before it can be used.

See Also **Begin Dialog, Dialog, Option Base, Private, Public, ReDim, Static, WithEvents.**

Example

```

Sub DoIt(Size)
    Dim C0,C1(),C2(2,3)
    ReDim C1(Size) ' dynamic array
    C0 = 1
    C1(0) = 2
    C2(0,0) = 3
    Debug.Print C0;C1(0);C2(0,0) ' 1 2 3
End Sub

```

```

Sub Main
    DoIt 1
End Sub

```

Dir\$ Function

Syntax Dir[\$]([*Pattern\$*][, *AttribMask*])

Group File

Description Scan a directory for the first file matching *Pattern\$*.

Parameter	Description
-----------	-------------

Pattern\$ This string value is the path and name of the file search pattern. If this is omitted then continue scanning with the previous pattern. Each *macro* has its own independent search. A path relative to the current directory can be used.

AttribMask This numeric value controls which files are found. A file with an *attribute* that matches will be found.

See Also **GetAttr().**

Example

```

Sub Main
    F$ = Dir$("*.*)
    While F$ <> ""
        Debug.Print F$
        F$ = Dir$()
    End While
End Sub

```

```
Wend
End Sub
```

DlgControlId Function

Syntax DlgControlId(*DlgItem* | \$)

Group Dialog Function

Description Return the *field*'s window id.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
<i>DlgItem</i> \$	If this is a numeric value then it is the dialog item number. The first item is 0, second is 1, etc. If this is a string value then it is the dialog item's <i>field</i> name.

Example

```
Sub Main
    Begin Dialog UserDialog 200,120,.DialogFunc
        Text 10,10,180,15,"Please push the OK button"
        TextBox 10,40,180,15,.Text
        OKButton 30,90,60,20
        PushButton 110,90,60,20,"&Hello"
    End Dialog
    Dim dlg As UserDialog
    Debug.Print Dialog(dlg)
End Sub
```

```
Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
    Case 1 ' Dialog box initialization
        Beep
    Case 2 ' Value changing or button pressed
        If DlgItem$ = "Hello" Then
            DialogFunc% = True 'do not exit the dialog
        End If
    Case 4 ' Focus changed
        Debug.Print "DlgFocus="";DlgFocus();""
        Debug.Print "DlgControlId(";DlgItem$;")="";
        Debug.Print DlgControlId(DlgItem$)
    End Select
End Function
```

DlgCount Function

Syntax DlgCount()

Group Dialog Function

Description Return the number of dialog items in the dialog.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Example

```
Sub Main
    Begin Dialog UserDialog 200,120,.DialogFunc
        Text 10,10,180,15,"Please push the OK button"
        TextBox 10,40,180,15,.Text
```

```

        OKButton 30,90,60,20
    End Dialog
    Dim dlg As UserDialog
    Dialog dlg
End Sub

Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
    Case 1 ' Dialog box initialization
        Beep
        Debug.Print "DlgCount=";DlgCount() ' 3
    End Select
End Function

```

DlgEnable Instruction/Function

Syntax DlgEnable *DlgItem*|\$[, *Enable*]

-or-

DlgEnable(*DlgItem*|\$)

Group Dialog Function

Description Instruction: Enable or disable *DlgItem*|\$.

Function: Return **True** if *DlgItem*|\$ is enabled.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
-----------	-------------

DlgItem|\$ If this is a numeric value then it is the dialog item number. The first item is 0, second is 1, etc. If this is a string value then it is the dialog item's *field* name.

Note: Use -1 to enable or disable all the dialog items at once.

Enable If this numeric value is **True** then enable *DlgItem*|\$. Otherwise, disable it. If this omitted then toggle it.

Example

```

    Sub Main
        Begin Dialog UserDialog 200,120,.DialogFunc
            Text 10,10,180,15,"Please push the OK button"
            TextBox 10,40,180,15,.Text
            OKButton 30,90,60,20
            PushButton 110,90,60,20,"&Disable"
        End Dialog
        Dim dlg As UserDialog
        Debug.Print Dialog(dlg)
    End Sub

```

```

Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
    Case 1 ' Dialog box initialization
        Beep
    Case 2 ' Value changing or button pressed
        Select Case DlgItem$
        Case "Disable"
            DlgText DlgItem$,"&Enable"

```

```

        DlgEnable "Text",False
        DialogFunc% = True 'do not exit the dialog
    Case "Enable"
        DlgText DlgItem$,"&Disable"
        DlgEnable "Text",True
        DialogFunc% = True 'do not exit the dialog
    End Select
End Select
End Function

```

DlgEnd Instruction

Syntax DlgEnd *ReturnCode*

Group Dialog Function

Description Set the return code for the **Dialog** Function and close the user dialog.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
-----------	-------------

<i>ReturnCode</i>	Return this numeric value.
-------------------	----------------------------

Example

```

Sub Main
    Begin Dialog UserDialog 210,120,.DialogFunc
        Text 10,10,190,15,"Please push the Close button"
        OKButton 30,90,60,20
        CheckBox 120,90,60,20,"&Close",.CheckBox1
    End Dialog
    Dim dlg As UserDialog
    Debug.Print Dialog(dlg)
End Sub

```

```

Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
    Case 1 ' Dialog box initialization
        Beep
    Case 2 ' Value changing or button pressed
        Select Case DlgItem$
        Case "CheckBox1"
            DlgEnd 1000
        End Select
    End Select
End Function

```

DlgFocus Instruction/Function

Syntax DlgFocus *DlgItem*|\$

-or-

DlgFocus[\$] ()

Group Dialog Function

Description Instruction: Move the focus to this *DlgItem*|\$.
Function: Return the *field* name which has the focus as a string.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
-----------	-------------

DlgItem \$ If this is a numeric value then it is the dialog item number. The first item is 0, second is 1, etc. If this is a string value then it is the dialog item's *field* name.

```
Example      Sub Main
    Begin Dialog UserDialog 200,120,.DialogFunc
        Text 10,10,180,15,"Please push the OK button"
        TextBox 10,40,180,15,.Text
        OKButton 30,90,60,20
        PushButton 110,90,60,20,"&Hello"
    End Dialog
    Dim dlg As UserDialog
    Debug.Print Dialog(dlg)
End Sub
```

```
Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
    Case 1 ' Dialog box initialization
        Beep
    Case 2 ' Value changing or button pressed
        If DlgItem$ = "Hello" Then
            MsgBox "Hello"
            DialogFunc% = True 'do not exit the dialog
        End If
    Case 4 ' Focus changed
        Debug.Print "DlgFocus="";DlgFocus();""
    End Select
End Function
```

DlgListBoxArray Instruction/Function

Syntax DlgListBoxArray *DlgItem* \$, *StrArray* \$()

-or-

DlgListBoxArray(*DlgItem* \$[, *StrArray* \$()])

Group Dialog Function

Description Instruction: Set the list entries for *DlgItem* \$.

Function: Return the number entries in *DlgItem* \$'s list.

This instruction/function must be called directly or indirectly from a *dialogfunc*. The *DlgItem* \$ should refer to a **ComboBox**, **DropListBox** or **ListBox**.

Parameter	Description
-----------	-------------

DlgItem \$ If this is a numeric value then it is the dialog item number. The first item is 0, second is 1, etc. If this is a string value then it is the dialog item's *field* name.

StrArray \$() Set the list entries of *DlgItem* \$. This one-dimensional array of strings establishes the list of choices. All the non-null elements of the array are used.

Example **Dim** lists\$()

DlgName Function

```
Sub Main
    ReDim lists$(0)
    lists$(0) = "List 0"
    Begin Dialog UserDialog 200,119,.DialogFunc
        Text 10,7,180,14,"Please push the OK button"
        ListBox 10,21,180,63,lists(),.list
        OKButton 30,91,40,21
        PushButton 110,91,60,21,"&Change"
    End Dialog
    Dim dlg As UserDialog
    dlg.list = 2
    Dialog dlg ' show dialog (wait for ok)
    Debug.Print dlg.list
End Sub

Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Select Case Action%
    Case 2 ' Value changing or button pressed
        If DlgItem$ = "Change" Then
            Dim N As Integer
            N = UBound(lists$)+1
            ReDim Preserve lists$(N)
            lists$(N) = "List " & N
            DlgListBoxArray "list",lists$()
            DialogFunc% = True 'do not exit the dialog
        End If
    End Select
End Function
```

DlgName Function

Syntax DlgName[\$] (*DlgItem*)

Group Dialog Function

Description Return the *field* name of the *DlgItem* number.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
-----------	-------------

DlgItem This numeric value is the dialog item number. The first item is 0, second is 1, etc.

Example

```
Sub Main
    Begin Dialog UserDialog 200,120,.DialogFunc
        Text 10,10,180,15,"Please push the OK button"
        TextBox 10,40,180,15,.Text
        OKButton 30,90,60,20
    End Dialog
    Dim dlg As UserDialog
    Dialog dlg
End Sub
```

```
Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
```



```

Case 1 ' Dialog box initialization
    Beep
    For I = 0 To DlgCount()-1
        Debug.Print I;DlgName(I)
    Next I
End Select
End Function

```

DlgNumber Function

Syntax DlgNumber(*DlgItem*%)

Group Dialog Function

Description Return the number of the *DlgItem*%. The first item is 0, second is 1, etc.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
-----------	-------------

DlgItem% This string value is the dialog item's *field* name.

Example

```

Sub Main
    Begin Dialog UserDialog 200,120,.DialogFunc
        Text 10,10,180,15,"Please push the OK button"
        TextBox 10,40,180,15,.Text
        OKButton 30,90,60,20
    End Dialog
    Dim dlg As UserDialog
    Dialog dlg
End Sub

```

```

Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
    Case 1 ' Dialog box initialization
        Beep
    Case 4 ' Focus changed
        Debug.Print DlgItem$;"=";DlgNumber(DlgItem%)
    End Select
End Function

```

DlgSetPicture Instruction

Syntax DlgSetPicture *DlgItem*|\$, *FileName*, *Type*

Group Dialog Function

Description Instruction: Set the file name for *DlgItem*|\$.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
-----------	-------------

DlgItem% If this is a numeric value then it is the dialog item number. The first item is 0, second is 1, etc. If this is a string value then it is the dialog item's *field* name.

FileName Set the file name of *DlgItem*|\$ to this string value.

Type This numeric value indicates the type of bitmap used. See below.

Type	Effect
------	--------

0 *FileName* is the name of the bitmap file. If the file does not exist then "(missing picture)" is displayed.
 3 The clipboard's bitmap is displayed. Not supported.
 +16 Instead of displaying "(missing picture)" a run-time error occurs.

Example

```

Sub Main
Begin Dialog UserDialog 200,120,.DialogFunc
  Picture 10,10,180,75,"",0,.Picture
  OKButton 30,90,60,20
  PushButton 110,90,60,20,"&View"
End Dialog
Dim dlg As UserDialog
Debug.Print Dialog(dlg)
End Sub

Function DialogFunc%(DlgItem$, Action%, SuppValue%)
  Debug.Print "Action=";Action%
  Select Case Action%
  Case 1 ' Dialog box initialization
    Beep
  Case 2 ' Value changing or button pressed
    Select Case DlgItem$
    Case "View"
      FileName = GetFilePath("Bitmap","BMP")
      DlgSetPicture "Picture",FileName,0
      DialogFunc% = True 'do not exit the dialog
    End Select
  End Select
End Function

```

DlgText Instruction/Function

Syntax DlgText *DlgItem*|\$, *Text*

-or-

DlgText[\$] (*DlgItem*|\$)

Group Dialog Function

Description Instruction: Set the text for *DlgItem*|\$.

Function: Return the text from *DlgItem*|\$.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
<i>DlgItem</i> \$	If this is a numeric value then it is the dialog item number. The first item is 0, second is 1, etc. If this is a string value then it is the dialog item's <i>field</i> name. Note: Use -1 to access the dialog's title.
<i>Text</i>	Set the text of <i>DlgItem</i> \$ to this string value.

Example

```

Sub Main
Begin Dialog UserDialog 200,120,.DialogFunc
  Text 10,10,180,15,"Please push the OK button"
  TextBox 10,40,180,15,.Text
  OKButton 30,90,60,20
  PushButton 110,90,60,20,"&Now"
End Dialog
Dim dlg As UserDialog

```

```

    Debug.Print Dialog(dlg)
End Sub

Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
    Case 1 ' Dialog box initialization
        Beep
    Case 2 ' Value changing or button pressed
        Select Case DlgItem$
        Case "Now"
            DlgText "Text", CStr(Now)
            DialogFunc% = True 'do not exit the dialog
        End Select
    End Select
End Function

```

DlgType Function

Syntax DlgType[\$] (*DlgItem*[\$])

Group Dialog Function

Description Return a string value indicating the type of the *DlgItem*[\$]. One of: "CancelButton", "CheckBox", "ComboBox", "DropListBox", "GroupBox", "ListBox", "OKButton", "OptionButton", "OptionGroup", "PushButton", "Text", "TextBox".

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
<i>DlgItem</i> [\$]	If this is a numeric value then it is the dialog item number. The first item is 0, second is 1, etc. If this is a string value then it is the dialog item's <i>field</i> name.

Example

```

Sub Main
    Begin Dialog UserDialog 200,120,.DialogFunc
        Text 10,10,180,15,"Please push the OK button"
        TextBox 10,40,180,15,.Text
        OKButton 30,90,60,20
    End Dialog
    Dim dlg As UserDialog
    Dialog dlg
End Sub

```

```

Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
    Case 1 ' Dialog box initialization
        Beep
        For I = 0 To DlgCount()-1
            Debug.Print I;DlgType(I)
        Next I
    End Select
End Function

```

DlgValue Instruction/Function

Syntax DlgValue *DlgItem* | \$, Value

-or-

DlgValue(*DlgItem* | \$)

Group Dialog Function

Description Instruction: Set the numeric value *DlgItem* | \$.

Function: Return the numeric value for *DlgItem* | \$.

This instruction/function must be called directly or indirectly from a *dialogfunc*. The *DlgItem* | \$ should refer to a **CheckBox**, **ComboBox**, **DropListBox**, **ListBox** or

OptionGroup.

Parameter	Description
<i>DlgItem</i> \$	If this is a numeric value then it is the dialog item number. The first item is 0, second is 1, etc. If this is a string value then it is the dialog item's <i>field</i> name.
<i>Text</i>	Set the text of <i>DlgItem</i> \$ to this string value.

Example

```

Sub Main
Begin Dialog UserDialog 150,147,.DialogFunc
  GroupBox 10,7,130,77,"Direction",.Field1
  PushButton 100,28,30,21,"&Up"
  PushButton 100,56,30,21,"&Dn"
  OptionGroup .Direction
    OptionButton 20,21,80,14,"&North",.North
    OptionButton 20,35,80,14,"&South",.South
    OptionButton 20,49,80,14,"&East",.East
    OptionButton 20,63,80,14,"&West",.West
  OKButton 10,91,130,21
  CancelButton 10,119,130,21
End Dialog
Dim dlg As UserDialog
Dialog dlg
MsgBox "Direction=" & dlg.Direction
End Sub

Function DialogFunc%(DlgItem$, Action%, SuppValue%)
  Select Case Action%
  Case 1 ' Dialog box initialization
    Beep
  Case 2 ' Value changing or button pressed
    Select Case DlgItem$
    Case "Up"
      DlgValue "Direction",0
      DialogFunc% = True 'do not exit the dialog
    Case "Dn"
      DlgValue "Direction",1
      DialogFunc% = True 'do not exit the dialog
    End Select
  End Select
End Function

```

DlgVisible Instruction/Function

Syntax `DlgVisible DlgItem|[$[, Visible]`

-or-

`DlgVisible (DlgItem|)$`

Group Dialog Function

Description Instruction: Show or hide *DlgItem*|\$.

Function: Return **True** if *DlgItem*|\$ is visible.

This instruction/function must be called directly or indirectly from a *dialogfunc*.

Parameter	Description
<i>DlgItem</i> \$	If this is a numeric value then it is the dialog item number. The first item is 0, second is 1, etc. If this is a string value then it is the dialog item's <i>field</i> name.
<i>Enable</i>	If this numeric value is True then show <i>DlgItem</i> \$. Otherwise, hide it. If this omitted then toggle it.

```
Example      Sub Main
Begin Dialog UserDialog 200,120,.DialogFunc
    Text 10,10,180,15,"Please push the OK button"
    TextBox 10,40,180,15,.Text
    OKButton 30,90,60,20
    PushButton 110,90,60,20,"&Hide"
End Dialog
Dim dlg As UserDialog
Debug.Print Dialog(dlg)
End Sub
```

```
Function DialogFunc%(DlgItem$, Action%, SuppValue%)
    Debug.Print "Action=";Action%
    Select Case Action%
    Case 1 ' Dialog box initialization
        Beep
    Case 2 ' Value changing or button pressed
        Select Case DlgItem$
        Case "Hide"
            DlgText DlgItem$,"&Show"
            DlgVisible "Text",False
            DialogFunc% = True 'do not exit the dialog
        Case "Show"
            DlgText DlgItem$,"&Hide"
            DlgVisible "Text",True
            DialogFunc% = True 'do not exit the dialog
        End Select
    End Select
End Function
```

Do Statement

Syntax `Do`

`statements`

`Loop`

-or-

`Do {Until|While} condexpr`

`statements`

```

Loop
-or-
Do
    statements
Loop {Until|While} condexpr

```

Group Flow Control

Description Form 1: Do *statements* forever. The loop can be exited by using **Exit** or **Goto**.

Form 2: Check for loop termination before executing the loop the first time.

Form 3: Execute the loop once and then check for loop termination.

Loop Termination:

- Until *condexpr*: Do *statements* until *condexpr* is **True**.
- While *condexpr*: Do *statements* while *condexpr* is **True**.

See Also For, For Each, Exit Do, While.

Example

```

Sub Main
    I = 2
    Do
        I = I*2
    Loop Until I > 10
    Debug.Print I ' 16
End Sub

```

DoEvents Instruction

Syntax DoEvents

Group Miscellaneous

Description This instruction allows other applications to process events.

Example

```

Sub Main
    DoEvents ' let other apps work
End Sub

```

Double Data Type

Group Data Type

Description A 64 bit real value.

DropListBox Dialog Item Definition

Syntax DropListBox X, Y, DX, DY, StrArray\$(), .Field[, Options]

Group User Dialog

Description Define a drop-down listbox item.

Parameter	Description
-----------	-------------

X	This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.
---	---

Y	This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.
---	--

DX This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.

DY This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.

StrArray\$() This one-dimensional array of strings establishes the list of choices. All the non-null elements of the array are used.

Field The value of the drop-down list box is accessed via this field. It is the index of the *StrArray\$()* var.

Options This numeric value controls the type of drop-down list box. Choose one value from following table. (If this numeric value omitted then zero is used.)

Option	Description
0	Text box is not editable and list is not sorted.
1	Text box is editable and list is not sorted.
2	Text box is not editable and list is sorted.
3	Text box is editable and list is sorted.

See Also **Begin Dialog, Dim As UserDialog.**

Example **Sub Main**

```

Dim lists$(3)
lists$(0) = "List 0"
lists$(1) = "List 1"
lists$(2) = "List 2"
lists$(3) = "List 3"
Begin Dialog UserDialog 200,120
    Text 10,10,180,15,"Please push the OK button"
    DropListBox 10,25,180,60,lists$(),.list1
    DropListBox 10,50,180,60,lists$(),.list2,1
    OKButton 80,90,40,20
End Dialog
Dim dlg As UserDialog
dlg.list1 = 2      ' list1 is a numeric field
dlg.list2 = "xxx"  ' list2 is a string field
Dialog dlg ' show dialog (wait for ok)
Debug.Print lists$(dlg.list1)
Debug.Print dlg.list2

```

End Sub

Empty Keyword

Group Constant

Description A *variantvar* that does not have any value.

End Instruction

Syntax End

Group Flow Control

Description The end instruction causes the *macro* to terminate immediately. If the macro was run by another macro using the **MacroRun** instruction then that macro continues on the instruction following the **MacroRun**.

Example **Sub DoSub**

```

L$ = UCase$(InputBox$("Enter End:"))
If L$ = "END" Then End
Debug.Print "End was not entered."

```

End Sub

```

Sub Main
    Debug.Print "Before DoSub"
    DoSub
    Debug.Print "After DoSub"
End Sub

```

Enum Definition

Syntax [| **Private** | **Public**] _
Enum *name*
 elem [= *value*]
 [...]

End Enum

Group Declaration

Description Define a new *userenum*. Each *elem* defines an element of the enum. If *value* is given then that is the element's value. The value can be any constant integer expression. If *value* is omitted then the element's value is one more than the previous element's value. If there is no previous element then zero is used.

Enum defaults to **Public** if neither **Private** or **Public** is specified.

Example Enum Days

```

Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday

```

End Enum

```

Sub Main
    Dim D As Days
    For D = Monday To Friday
        Debug.Print D ' 0 through 4
    Next D

```

End Sub

Environ Instruction/Function

Syntax Environ[\$] (*Index*)

-or-

Environ[\$] (*Name*)

Group Miscellaneous

Description Return an environment string.

Parameter	Description
-----------	-------------

<i>Index</i>	Return this environment string's value. If there is no environment string at this index a null string is returned. Indexes start at one.
--------------	--

<i>Name</i>	Return this environment string's value. If the environment string can't be found a null string is returned.
-------------	---

Example Sub Main
 Debug.Print Environ("Path")
End Sub

EOF Function

Syntax EOF(*StreamNum*)

Group File

Description Return **True** if *StreamNum* is at the end of the file.

Parameter	Description
-----------	-------------

<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.
------------------	--

Example

```

Sub Main
    Open "XXX" For Input As #1
    While Not EOF(1)
        Line Input #1, L$
        Debug.Print L$
    Wend
    Close #1
End Sub

```

Erase Instruction

Syntax Erase *arrayvar*[, ...]

-or-

Erase *usertypevar.elem*[, ...]

Group Assignment

Description Reset *arrayvar* or *user defined type* array element to zero. (Dynamic arrays are reset to undimensioned arrays.) String arrays values are set to a null string. *arrayvar* must be declared as an array.

- Declare with **Dim**, **Private**, **Public** or **Static**.
- Declare as a parameter of **Sub**, **Function** or **Property** definition.

Example

```

Sub Main
    Dim X%(2)
    X%(1) = 1
    Erase X%
    Debug.Print X%(1) ' 0
End Sub

```

Err Object

Syntax Err

Group Error Handling

Description Set Err to zero to clear the last error event. Err in an expression returns the last error code. Add vbObjectError to your error number in ActiveX Automation objects. Use Err.Raise or **Error** to trigger an error event.

Err[.Number]

This is the error code for the last error event. Set it to zero (or use Err.Clear) to clear the last error condition. Use **Error** or Err.Raise to trigger an error event. This is the default property.

Err.Description

This string is the description of the last error event.

`Err.Source`

This string is the error source file name of the last error event.

`Err.HelpFile`

This string is the help file name of the last error event.

`Err.HelpContext`

This number is the help context id of the last error event.

`Err.Clear`

Clear the last error event.

```
Err.Raise [Number:=]errorcode _
          [, [Source:=]source] _
          [, [Description:=]errordesc] _
          [, [HelpFile:=]helpfile] _
          [, [HelpContext:=]context]
```

Raise an error event.

`Err.LastDLLError`

For 32 bit windows this returns the error code for the last DLL call (see **Declare**). For 16 bit windows this always returns 0.

Example

```
Sub Main
  On Error GoTo Problem
  Err = 1 ' set to error #1 (handler not triggered)
  Exit Sub

  Problem: ' error handler
  Error Err ' halt macro with message
End Sub
```

Error Instruction/Function

Syntax `Error ErrorCode`

-or-

`Error[$]([ErrorCode])`

Group Error Handling

Description Instruction: Signal error *ErrorCode*. This triggers error handling just like a real error. The current *procedure*'s error handler is activated, unless it is already active or there isn't one. In that case the calling *procedure*'s error handler is tried. (Use **Err.Raise** to provide complete error information.)

Function: The `Error()` function returns the error text string.

Parameter	Description
<i>ErrorCode</i>	This is the error number.

```

Example      Sub Main
On Error GoTo Problem
Err.Raise 1 ' simulate error #1
Exit Sub

Problem: ' error handler
Debug.Print "Error$=";Error$
Resume Next
End Sub

```

Eval Function

Syntax Eval(*Expr*[, *Depth*])

Group Miscellaneous

Description Return the value of the string expression as evaluated.

Parameter	Description
-----------	-------------

Expr Evaluate this string value.

Depth This integer value indicates how deep into the stack to locate the local variables. If Depth = 0 then use the current *procedure*. If this value is omitted then the depth is 0.

```

Example      Sub Main
Dim X As String
X = "Hello"
Debug.Print Eval("X") 'Hello
A
End Sub

Sub A
Dim X As String
X = "Bye"
Debug.Print Eval("X") 'Bye
Debug.Print Eval("X",1) 'Hello
End Sub

```

Exit Instruction

Syntax Exit {All|Do|For|Function|Property|Sub|While}

Group Flow Control

Description The exit instruction causes the *macro* to continue with out doing some or all of the remaining instructions.

Exit	Description
------	-------------

All	Exit all <i>macros</i> .
Do	Exit the Do loop.
For	Exit the For or For Each loop.
Function	Exit the Function block. Note: This instruction clears the Err and sets Error\$ to null.
Property	Exit the Property block. Note: This instruction clears the Err and sets Error\$ to null.
Sub	Exit the Sub block. Note: This instruction clears the Err and sets Error\$ to null.
While	Exit the While loop.

```

Example      Sub Main
L$ = InputBox$("Enter Do, For, While, Sub or All:")
Debug.Print "Before DoSub"
DoSub UCase$(L$)
Debug.Print "After DoSub"
End Sub

```

```

Sub DoSub(L$)
  Do
    If L$ = "DO" Then Exit Do
    I = I+1
  Loop While I < 10
  If I = 0 Then Debug.Print "Do was entered"

  For I = 1 To 10
    If L$ = "FOR" Then Exit For
  Next I
  If I = 1 Then Debug.Print "For was entered"

  I = 10
  While I > 0
    If L$ = "WHILE" Then Exit While
    I = I-1
  Wend
  If I = 10 Then Debug.Print "While was entered"

  If L$ = "SUB" Then Exit Sub
  Debug.Print "Sub was not entered."
  If L$ = "ALL" Then Exit All
  Debug.Print "All was not entered."
End Sub

```

Exp Function

Syntax Exp (*Num*)

Group Math

Description Return the exponential.

Parameter	Description
-----------	-------------

<i>Num</i>	Return e raised to the power of this numeric value. The value e is approximately 2.718282.
------------	--

Example **Sub** Main
 Debug.Print Exp(1) ' 2.718281828459

End Sub

False Keyword

Group Constant

Description A *condexpr* is false when its value is zero. A function that returns False returns the value 0.

FileAttr Function

Syntax FileAttr(*StreamNum*, *ReturnValue*)

Group File

Description Return *StreamNum*'s open mode or file handle.

Parameter	Description
-----------	-------------

<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.
------------------	--

ReturnValue 1 - return the mode used to open the file: 1=Input, 2=Output, 4=Random, 8=Append, 32=Binary
 2 - return the file handle

See Also **Open.**

Example **Sub** Main
 Open "XXX" **For** Output **As** #1
 Debug.Print FileAttr(1,1) ' 2
 Close #1
End Sub

FileCopy Instruction

Syntax FileCopy *FromName\$, ToName\$*

Group File

Description Copy a file.

Parameter	Description
<i>FromName\$</i>	This string value is the path and name of the source file. A path relative to the current directory can be used.
<i>ToName\$</i>	This string value is the path and name of the destination file. A path relative to the current directory can be used.

Example **Sub** Main
 FileCopy "C:\AUTOEXEC.BAT", "C:\AUTOEXEC.BAK"
End Sub

FileDateTime Function

Syntax FileDateTime (*Name\$*)

Group File

Description Return the date and time file *Name\$* was last changed as a **date** value. If the file does not exist then a run-time error occurs.

Parameter	Description
<i>Name\$</i>	This string value is the path and name of the file. A path relative to the current directory can be used.

Example **Sub** Main
 F\$ = Dir\$ ("*. *")
 While F\$ <> ""
 Debug.Print F\$; " "; FileDateTime (F\$)
 F\$ = Dir\$()
 Wend
End Sub

FileLen Function

Syntax FileLen (*Name\$*)

Group File

Description Return the length of file *Name\$*. If the file does not exist then a run-time error occurs.

Parameter	Description
<i>Name\$</i>	This string value is the path and name of the file. A path relative to the current directory can be used.

Example **Sub** Main
 F\$ = Dir\$ ("*. *")
 While F\$ <> ""

```

        Debug.Print F$;" ";FileLen(F$)
        F$ = Dir$()
    Wend
End Sub

```

Fix Function

Syntax `Fix (Num)`

Group Math

Description Return the integer value.

Parameter	Description
-----------	-------------

Num Return the integer portion of this numeric value. The number is truncated. Positive numbers return the next lower integer. Negative numbers return the next higher integer. If this value is **Null** then **Null** is returned.

Example

```

Sub Main
    Debug.Print Fix(9.9) ' 9
    Debug.Print Fix(0) ' 0
    Debug.Print Fix(-9.9) '-9
End Sub

```

End Sub

For Statement

Syntax `For Num = First To Last [Step Inc]`
statements

`Next [Num]`

Group Flow Control

Description Execute *statements* while *Num* is in the range *First* to *Last*.

Parameter	Description
-----------	-------------

Num This is the iteration variable.

First Set *Num* to this value initially.

Last Continue looping while *Num* is in the range. See *Step* below.

Step If this numeric value is greater than zero then the for loop continues as long as *Num* is less than or equal to *Last*. If this numeric value is less than zero then the for loop continues as long as *Num* is greater than or equal to *Last*. If this is omitted then one is used.

See Also **Do, For Each, Exit For, While.**

Example

```

Sub Main
    For I = 1 To 2000 Step 100
        Debug.Print I;I+I;I*I
    Next I
End Sub

```

End Sub

For Each Statement

Syntax `For Each var In items`
statements

`Next [var]`

Group Flow Control

Description Execute *statements* for each item in *items*.

Parameter	Description
-----------	-------------

var This is the iteration variable.

items This is the collection of items to be done.

See Also **Do, For, Exit For, While.**

```
Example      Sub Main
Dim Document As Object
For Each Document In App.Documents
    Debug.Print Document.Title
Next Document
End Sub
```

Format\$ Function

Syntax `Format[$](expr[, form$], [firstday], _
[firstweek])`

Group String

Description Return the formatted string representation of *expr*.

Parameter	Description
<i>expr</i>	Return the formatted string representation of this numeric value.
<i>form</i>	Format <i>expr</i> using to this string value. If this is omitted then return the <i>expr</i> as a string.
<i>firstday</i>	Format using this day as the first day of the week. If this is omitted then the vbSunday is used. (Only supported for Win32.)
<i>firstweek</i>	Format using this week as the first week of the year. If this is omitted then the vbFirstJan1 is used. (Only supported for Win32.)

firstday	Value	Description
vbUseSystemFirstDay	0	Use the systems first day of the week.
vbSunday	1	Sunday (default)
vbMonday	2	Monday
vbTuesday	3	Tuesday
vbWednesday	4	Wednesday
vbThursday	5	Thursday
vbFriday	6	Friday
vbSaturday	7	Saturday

firstweek	Value	Description
vbUseSystem	0	Use the systems first week of the year.
vbFirstJan1	1	The week that January 1 occurs in. This is the default value.
2	vbFirstFourDays	The first week that has at least four days in the year.
3	vbFirstFullWeek	The first week that entirely in the year.

See Also [Predefined Date Format](#), [Predefined Number Format](#), [User defined Date Format](#), [User defined Number Format](#), [User defined Text Format](#).

Format Predefined Date

Description The following predefined date formats may be used with the **Format** function. Predefined formats may not be combined with user defined formats or other predefined formats.

Form	Description
General Date	Same as user defined date format "c"
Long Date	Same as user defined date format "dddddd"
Medium Date	Not supported at this time.
Short Date	Same as user defined date format "dddddd"
Long Time	Same as user defined date format "ttttt"
Medium Time	Same as user defined date format "hh:mm AMPM"
Short Time	Same as user defined date format "hh:mm"

Format Predefined Number

Description The following predefined number formats may be used with the **Format** function. Predefined formats may not be combined with user defined formats or other predefined formats.

Form	Description
General Number	Return number as is.
Currency	Same as user defined number format "\$#,##0.00;(\$#,##0.00)"
Not locale dependent at this time.	
Fixed	Same as user defined number format "0.00".
Standard	Same as user defined number format "#,##0.00".
Percent	Same as user defined number format "0.00%".
Scientific	Same as user defined number format "0.00E+00".
Yes/No	Return "No" if zero, else return "Yes".
True/False	Return "True" if zero, else return "False".
On/Off	Return "On" if zero, else return "Off".

Example

Sub Main

Debug.Print Format\$(2.145,"Standard") ' 2.15

End Sub

Format User Defined Date

Description The following date formats may be used with the **Format** function. Date formats may be combined to create the user defined date format. User defined date formats may not be combined with other user defined formats or predefined formats.

Parameter	Description
:	insert localized time separator
/	insert localized date separator
c	insert dddd tttt, insert date only if t=0, insert time only if d=0
d	insert day number without leading zero
dd	insert day number with leading zero
ddd	insert abbreviated day name
dddd	insert full day name
dddddd	insert date according to Short Date format
ddddddd	insert date according to Long Date format
w	insert day of week number
ww	insert week of year number
m	insert month number without leading zero
insert minute number without leading zero (if follows h or hh)	
mm	insert month number with leading zero
insert minute number with leading zero (if follows h or hh)	
mmm	insert abbreviated month name
mmmm	insert full month name
q	insert quarter number
y	insert day of year number
yy	insert year number (two digits)
yyyy	insert year number (four digits, no leading zeros)
h	insert hour number without leading zero
hh	insert hour number with leading zero
n	insert minute number without leading zero
nn	insert minute number with leading zero
s	insert second number without leading zero
ss	insert second number with leading zero
tttt	insert time according to time format
AM/PM	use 12 hour clock and insert AM (hours 0 to 11) and PM (12 to 23)
am/pm	use 12 hour clock and insert am (hours 0 to 11) and pm (12 to 23)

A/P use 12 hour clock and insert A (hours 0 to 11) and P (12 to 23)
a/p use 12 hour clock and insert a (hours 0 to 11) and p (12 to 23)
AMPM use 12 hour clock and insert localized AM/PM strings
\c insert character c
"text" insert literal text

Example

Format User Defined Number

Description The following number formats may be used with the **Format** function. Number formats may be combined to create the user defined number format. User defined number formats may not be combined with other user defined formats or predefined formats.

User defined number formats can contain up to four sections separated by ';':

- form - format for non-negative expr, '-'format for negative expr, empty and null expr return ""
- form;negform - negform: format for negative expr
- form;negform;zeroform - zeroform: format for zero expr
- form;negform;zeroform>nullform - nullform: format for null expr

Parameter	Description
#	digit, don't include leading/trailing zero digits (all the digits left of decimal point are returned) eg. Format(19,"###") returns "19"
0	digit, include leading/trailing zero digits eg. Format(19,"000") returns "019"
.	decimal, insert localized decimal point eg. Format(19.9,"###.00") returns "19.90"
,	thousands, insert localized thousand separator every 3 digits "xxx," or "xxx,." mean divide expr by 1000 prior to formatting two adjacent commas ",," means divide expr by 1000 again eg. Format(1900000,"0,,") returns "2"
%	percent, insert %, multiply expr by 100 prior to formatting eg. Format(1900000,"0,,.0") returns "1.9"
:	insert localized time separator
/	insert localized date separator
E+ e+ E- e-	use exponential notation, insert E (or e) and the signed exponent eg. Format(1000,"0.00E+00") returns "1.00E+03"
- + \$ () space	insert literal char eg. Format(10,"\$#") returns "\$10"
\c	insert character c eg. Format(19,"#####") returns "#19#"
"text"	insert literal text eg. Format(19,"#####") returns "##19##"

Example

Sub Main

Debug.Print Format\$(2.145,"#.00") ' 2.15

End Sub

Format User Defined Text

Description The following text formats may be used with the **Format** function. Text formats may be combined to create the user defined text format. User defined text formats may not be combined with other user defined formats or predefined formats.

User defined text formats can contain one or two sections separated by ';;':

- form - format for all strings
- form;nullform - nullform: format for empty and null strings

Parameter	Description
@	char placeholder, insert char or space
&	char placeholder, insert char or nothing
<	all chars lowercase
>	all chars uppercase
!	fill placeholder from left-to-right (default is right-to-left)
\c	insert character c
"text"	insert literal text

```

Example           Sub Main
    Debug.Print Format("123","ab@c")   '" ab1c23"
    Debug.Print Format("123","!ab@c")  '" ab3c"
End Sub

```

FreeFile Function

Syntax FreeFile[()]

Group File

Description Return the next unused shared stream number (greater than or equal to 256). Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.

```

Example           Sub Main
    Debug.Print FreeFile ' 256
    FN = FreeFile
    Open "XXX" For Output As #FN
    Debug.Print FreeFile ' 257
    Close #FN
    Debug.Print FreeFile ' 256
End Sub

```

Friend Keyword

Group Declaration

Description Friend **Functions**, **Property**s and **Subs** in a *module* are available in all other *macros/modules* that access it. Friends are not accessible via **Object** variables.

Function Definition

Syntax [| **Private** | **Public** | **Friend**]
Function *name*[*type*][([*param*[, ...]])] [*As* *type*[()]]
statements

End Function

Group Declaration

Description User defined function. The function defines a set of *statements* to be executed when it is called. The values of the calling *arglist* are assigned to the *params*. Assigning to *name[type]* sets the value of the function result.

Function defaults to **Public** if **Private**, **Public** or **Friend** are not is specified.

See Also **Declare, Property, Sub.**

Example Function Power(X,Y)

```
P = 1
For I = 1 To Y
    P = P*X
Next I
Power = P
```

End Function

Sub Main

```
Debug.Print Power(2,8) ' 256
```

End Sub

Get Instruction

Syntax Get *StreamNum*, [*RecordNum*], *var*

Group File

Description Get a variable's value from *StreamNum*.

Parameter	Description
<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.
<i>RecordNum</i>	For Random mode files this is the record number. The first record is 1. Otherwise, it is the byte position. The first byte is 1. If this is omitted then the current position (or record number) is used.
<i>var</i>	This variable value is read from the file. For a fixed length variable (like Long) the number of bytes required to restore the variable are read. For a Variant variable two bytes are read which describe its type and then the variable value is read accordingly. For a <i>usertype</i> variable each field is read in sequence. For an array variable each element is read in sequence. For a dynamic array variable the number of dimensions and range of each dimension is read prior to reading the array values. All binary data values are read from the file in <i>little-endian</i> format.

Note: When reading a string (or a dynamic array) from a Binary mode file the length (or array dimension) information is not read. The current string length determines how much string data is read. The current array dimension determines how many array elements are read.

See Also **Open, Put.**

Example Sub Main

```
Dim V As Variant
Open "SAVE V.DAT" For Binary Access Read As #1
Get #1, , V
Close #1
```

End Sub

GetAllSettings Function

Syntax GetAllSettings(*AppName*\$, *Section*\$, *Key*%)

Group Settings

Description Get all of *Section*'s settings in project *AppName*. Settings are returned in a **Variant**. **Empty** is returned if there are no keys in the section. Otherwise, the **Variant**

contains a two dimension array: (I,0) is the key and (I,1) is the setting. Win16 and Win32s store settings in a .ini file named *AppName*. Win32 stores settings in the registration database.

Parameter	Description
<i>AppName\$</i>	This string value is the name of the project which has this <i>Section</i> and <i>Key</i> .
<i>Section\$</i>	This string value is the name of the section of the project settings.
Example	<pre> Sub Main SaveSetting "MyApp", "Font", "Size", 10 SaveSetting "MyApp", "Font", "Name", "Courier" Settings = GetAllSettings("MyApp", "Font") For I = LBound(Settings) To UBound(Settings) Debug.Print Settings(I,0); "="; Settings(I,1) Next I DeleteSetting "MyApp", "Font" End Sub </pre>

GetAttr Function

Syntax GetAttr (*Name\$*)

Group File

Description Return the *attributes* for file *Name\$*. If the file does not exist then a run-time error occurs.

Parameter	Description
<i>Name\$</i>	This string value is the path and name of the file. A path relative to the current directory can be used.
Example	<pre> Sub Main F\$ = Dir\$ ("*. *") While F\$ <> "" Debug.Print F\$; " "; GetAttr (F\$) F\$ = Dir\$ () Wend End Sub </pre>

GetFilePath\$ Function

Syntax GetFilePath[\$] ([*DefName\$*], [*DefExt\$*], [*DefDir\$*], _
[*Title\$*], [*Option*])

Group User Input

Description Put up a dialog box and get a file path from the user. The returned string is a complete path and file name. If the cancel button is pressed then a null string is returned.

Parameter	Description
<i>DefName\$</i>	Set the initial File Name in the to this string value. If this is omitted then *. <i>DefExt\$</i> is used.
<i>DefExt\$</i>	Initially show files whose extension matches this string value. (Multiple extensions can be specified by using ";" as the separator.) If this is omitted then * is used.
<i>DefDir\$</i>	This string value is the initial directory. If this is omitted then the current directory is used.
<i>Title\$</i>	This string value is the title of the dialog. If this is omitted then "Open" is used.
<i>Option</i>	This numeric value determines the file selection options. If this is omitted then zero is used. See table below.
Option	Effect
0	Only allow the user to select a file that exists.
1	Confirm creation when the user selects a file that does not exist.

- 2 Allow the user to select any file whether it exists or not.
- 3 Confirm overwrite when the user selects a file that exists.
- +4 Selecting a different directory changes the application's current directory.

Example `Sub Main`
 `Debug.Print GetFilePath$()`
End Sub

GetObject Function

Syntax `GetObject([File$][, Class$])`

Group Object

Description Get an existing object of type *Class\$* from *File\$*. Use **Set** to assign the returned object to an object variable.

Parameter	Description
-----------	-------------

<i>File\$</i>	This is the file where the object resides. If this is omitted then the currently active object for <i>Class\$</i> is returned.
---------------	--

<i>Class\$</i>	This string value is the application's registered class name. If this application is not currently active it will be started. If this is omitted then the application associated with the file's extension will be started.
----------------	---

Example `Sub Main`
 `Dim App As Object`
 `Set App = GetObject("WinWrap.CppDemoApplication")`
 `App.Move 20,30 ' move icon to 20,30`
 `Set App = Nothing`
 `App.Quit ' run-time error (no object)`

End Sub

GetSetting Function

Syntax `GetSetting$(AppName$, Section$, Key$[, Default$])`

Group Settings

Description Get the setting for *Key* in *Section* in project *AppName*. Win16 and Win32s store settings in a .ini file named *AppName*. Win32 stores settings in the registration database.

Parameter	Description
-----------	-------------

<i>AppName\$</i>	This string value is the name of the project which has this <i>Section</i> and <i>Key</i> .
------------------	---

<i>Section\$</i>	This string value is the name of the section of the project settings.
------------------	---

<i>Key\$</i>	This string value is the name of the key in the section of the project settings.
--------------	--

<i>Default\$</i>	Return this string value if no setting has been saved. If this is omitted then a null string is used.
------------------	---

Example `Sub Main`
 `SaveSetting "MyApp", "Font", "Size", 10`
 `Debug.Print GetSetting("MyApp", "Font", "Size") ' 10`

End Sub

Goto Instruction

Syntax `GoTo label`

Group Flow Control

Description Go to the *label* and continue execution from there. Only *labels* in the current user defined *procedure* are accessible.

Example `Sub Main`
 `X = 2`

```

Loop:
  X = X*X
  If X < 100 Then GoTo Loop
  Debug.Print X ' 256
End Sub

```

GroupBox Dialog Item Definition

Syntax GroupBox *X, Y, DX, DY, Title\$[, .Field]*

Group User Dialog

Description Define a groupbox item.

Parameter	Description
<i>X</i>	This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.
<i>Y</i>	This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.
<i>DX</i>	This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.
<i>DY</i>	This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.
<i>Title\$</i>	This string value is the title of the group box.
<i>Field</i>	This identifier is the name of the field. The <i>dialogfunc</i> receives this name as <i>string</i> . If this identifier is omitted then the first two words of the title are used.

See Also **Begin Dialog, Dim As UserDialog.**

Example

```

Sub Main
  Begin Dialog UserDialog 200,120
    Text 10,10,180,15,"Please push the OK button"
    GroupBox 10,25,180,60,"Group box"
    OKButton 80,90,40,20
  End Dialog
  Dim dlg As UserDialog
  Dialog dlg ' show dialog (wait for ok)
End Sub

```

Hex\$ Function

Syntax Hex[\$] (*Num*)

Group String

Description Return a hex string.

Parameter	Description
<i>Num</i>	Return a hex encoded string for this numeric value.

See Also **Oct\$(), Str\$(), Val().**

Example

```

Sub Main
  Debug.Print Hex$(15) 'F
End Sub

```

Hour Function

Syntax Hour(*dateexpr*)

Group Time/Date

Description Return the hour of the day (0 to 23).

Parameter	Description
-----------	-------------

dateexpr Return the hour of the day for this date value. If this value is **Null** then **Null** is returned.

See Also [Minute\(\)](#), [Second\(\)](#), [Time\(\)](#).

Example

```
Sub Main
    Debug.Print Hour(#12:00:01 AM#) ' 0
End Sub
```

If Statement

Syntax If *condexpr* Then [*instruction*] [Else *instruction*]

-or-

```
If condexpr Then
    statements
[ElseIf condexpr Then
    statements]...
[Else
    statements]
End If
```

-or-

```
If TypeOf objexpr Is objtype Then ...
```

Group Flow Control

Description Form 1: Single line if statement. Execute the *instruction* following the Then if *condexpr* is **True**. Otherwise, execute the *instruction* following the Else. The Else portion is optional.

Form 2: The multiple line if is useful for complex ifs. Each if *condexpr* is checked in turn. The first **True** one causes the following *statements* to be executed. If all are **False** then the Else's *statements* are executed. The ElseIf and Else portions are optional.

Form 3: If *objexpr*'s type is the same type or a type descended from *objtype* the Then portion is executed.

See Also [Select Case](#), [Choose\(\)](#), [IIf\(\)](#).

Example

```
Sub Main
    S = InputBox("Enter hello, goodbye, dinner or sleep:")
    S = UCase(S)
    If S = "HELLO" Then Debug.Print "come in"
    If S = "GOODBYE" Then Debug.Print "see you later"
    If S = "DINNER" Then
        Debug.Print "Please come in."
        Debug.Print "Dinner will be ready soon."
    ElseIf S = "SLEEP" Then
        Debug.Print "Sorry."
        Debug.Print "We are full for the night"
    End If
End Sub
```

IIf Function

Syntax IIf(*condexpr*, *TruePart*, *FalsePart*)

Group Miscellaneous

Description Return the value of the parameter indicated by *condexpr*. Both *TruePart* and *FalsePart* are evaluated.

Parameter	Description
-----------	-------------

condexpr If this value is **True** then return *TruePart*. Otherwise, return *FalsePart*.

TruePart Return this value if *condexpr* is **True**.

FalsePart Return this value if *condexpr* is **False**.

See Also **If, Select Case, Choose().**

Example

```
Sub Main
    Debug.Print IIf(1 > 0, "True", "False") "True"
End Sub
```

Input Instruction

Syntax Input [#]*StreamNum*, var[, ...]

Group File

Description Get input from *StreamNum* and assign it to *vars*. Input values are comma delimited. Leading and trailing spaces are ignored. If the first char (following the leading spaces) is a quote (") then the string is terminated by an ending quote. Special values #NULL#, #FALSE#, #TRUE#, #date# and #ERROR number# are converted to their appropriate value and data type.

See Also **Line Input, Print, Write.**

Example

```
Sub Main
    Open "XXX" For Input As #1
    Input #1, A, B, C$
    Debug.Print A;B;C$
    Close #1
End Sub
```

Input\$ Function

Syntax Input[\$] (*N*, *StreamNum*)

Group File

Description Return *N* chars from *StreamNum*.

Parameter	Description
-----------	-------------

N Read this many chars. If fewer than that many chars are left before the end of file then a run-time error occurs.

StreamNum Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.

Example

```
Sub Main
    Open "XXX" For Input As #1
    L = LOF(1)
    T$ = Input$(L, 1)
    Close #1
    Debug.Print T$;
End Sub
```

InputBox\$ Function

Syntax InputBox[\$] (*Prompt\$*[, *Title\$*][, *Default\$*][, *XPos*, *YPos*)

Group User Input

Description Display an input box where the user can enter a line of text. Pressing the OK button returns the string entered. Pressing the Cancel button returns a null string.

Parameter	Description
<i>Prompt\$</i>	Use this string value as the prompt in the input box.
<i>Title\$</i>	Use this string value as the title of the input box. If this is omitted then the input box does not have a title.
<i>Default\$</i>	Use this string value as the initial value in the input box. If this is omitted then the initial value is blank.
<i>XPos</i>	When the dialog is put up the left edge will be at this screen position. If this is omitted then the dialog will be centered.
<i>YPos</i>	When the dialog is put up the top edge will be at this screen position. If this is omitted then the dialog will be centered.

Example

```

Sub Main
    L$ = InputBox$("Enter some text:", _
        "Input Box Example", "asdf")
    Debug.Print L$
End Sub

```

InStr Function

Syntax InStr([*Index*,]*S1\$*, *S2\$*)

Group String

Description Return the index where *S2\$* first matches *S1\$*. If no match is found return 0.

Note: A similar function, InStrB, returns the byte index instead.

Parameter	Description
<i>Index</i>	Start searching for <i>S2\$</i> at this index in <i>S1\$</i> . If this is omitted then start searching from the beginning of <i>S1\$</i> .
<i>S1\$</i>	Search for <i>S2\$</i> in this string value. If this value is Null then Null is returned.
<i>S2\$</i>	Search <i>S1\$</i> for this string value. If this value is Null then Null is returned.

See Also InStrRev(), Left(), Len(), Mid(), Replace(), Right().

Example

```

Sub Main
    Debug.Print InStr("Hello", "l") ' 3
End Sub

```

InStrRev Function

Syntax InStrRev(*S1\$*, *S2\$*[, *Index*])

Group String

Description Return the index where *S2\$* last matches *S1\$*. If no match is found return 0.

Parameter	Description
<i>S1\$</i>	Search for <i>S2\$</i> in this string value. If this value is Null then Null is returned.
<i>S2\$</i>	Search <i>S1\$</i> for this string value. If this value is Null then Null is returned.
<i>Index</i>	Start searching for <i>S2\$</i> ending at this index in <i>S1\$</i> . If this is omitted then start searching from the end of <i>S1\$</i> .

See Also Left(), Len(), Mid(), Replace(), Right().

Example

```

Sub Main
    Debug.Print InStrRev("Hello", "l") ' 4
End Sub

```

Int Function

Syntax Int (*Num*)

Group Math**Description** Return the integer value.

Parameter	Description
-----------	-------------

Num Return the largest integer which is less than or equal to this numeric value. If this value is **Null** then **Null** is returned.

Example

```

Sub Main
    Debug.Print Int(9.9) ' 9
    Debug.Print Int(0)   ' 0
    Debug.Print Int(-9.9) '-10
End Sub

```

Integer Data Type

Group Data Type**Description** A 16 bit integer value.

Is Operator

Syntax *expr* Is *expr***Group** Operator**Description** Return the **True** if both *exprs* refer to the same object.**See Also** **Objects.**

Example

```

Sub Main
    Dim X As Object
    Dim Y As Object
    Debug.Print X Is Y ' True
End Sub

```

IsArray Function

Syntax IsArray(*var*)**Group** Variable Info**Description** Return the **True** if *var* is an array of values.

Parameter	Description
-----------	-------------

var A array variable or a variant var can contain multiple of values.

See Also **TypeName, VarType.**

Example

```

Sub Main
    Dim X As Variant, Y(2) As Integer
    Debug.Print IsArray(X) 'False
    X = Array(1,4,9)
    Debug.Print IsArray(X) 'True
    X = Y
    Debug.Print IsArray(X) 'True
End Sub

```

IsDate Function

Syntax IsDate(*expr*)**Group** Variable Info**Description** Return the **True** if *expr* is a valid date.

Parameter	Description
<i>expr</i>	A variant expression to test for a valid date.
See Also	TypeName, VarType.
Example	<pre> Sub Main Dim X As Variant X = 1 Debug.Print IsDate(X) 'False X = Now Debug.Print IsDate(X) 'True End Sub </pre>

IsEmpty Function

Syntax IsEmpty(*variantvar*)

Group Variable Info

Description Return the **True** if *variantvar* is **Empty**.

Parameter	Description
<i>variantvar</i>	A variant var is Empty if it has never been assign a value.
See Also	TypeName, VarType.
Example	<pre> Sub Main Dim X As Variant Debug.Print IsEmpty(X) 'True X = 0 Debug.Print IsEmpty(X) 'False X = Empty Debug.Print IsEmpty(X) 'True End Sub </pre>

IsError Function

Syntax IsError(*expr*)

Group Variable Info

Description Return the **True** if *expr* is an error code.

Parameter	Description
<i>expr</i>	A variant expression to test for an error code value.
See Also	TypeName, VarType.
Example	<pre> Sub Main Dim X As Variant Debug.Print IsError(X) 'False X = CVErr(1) Debug.Print IsError(X) 'True End Sub </pre>

IsMissing Function

Syntax IsMissing(*variantvar*)

Group Variable Info

Description Return the **True** if Optional parameter *variantvar* does not have a defaultvalue and it did not get a value. An Optional parameter may be omitted in the **Sub**, **Function** or **Property** call.

Parameter	Description
-----------	-------------

variantvar Return **True** if this variant parameter's argument expression was not specified in the **Sub**, **Function** or **Property** call.

Example

```
Sub Main
    Opt 'IsMissing(A)=True
    Opt "Hi" 'IsMissing(A)=False
    Many 'No args
    Many 1,"Hello" 'A(0)=1 A(1)=Hello
    OptBye '"Bye"
    OptBye "No" '"No"
End Sub
```

```
Sub Opt(Optional A)
    Debug.Print "IsMissing(A)=";IsMissing(A)
End Sub
```

```
Sub Many(ParamArray A())
    If LBound(A) > UBound(A) Then
        Debug.Print "No args"
    Else
        For I = LBound(A) To UBound(A)
            Debug.Print "A(" & I & ")=" & A(I) & " ";
        Next I
        Debug.Print
    End If
End Sub
```

```
Sub OptBye(Optional A As String = "Bye")
    Debug.Print A
End Sub
```

IsNull Function

Syntax IsNull(*expr*)

Group Variable Info

Description Return the **True** if *expr* is **Null**.

Parameter	Description
-----------	-------------

expr A variant expression to test for **Null**.

See Also TypeName, VarType.

Example

```
Sub Main
    Dim X As Variant
    Debug.Print IsEmpty(X) 'True
    Debug.Print IsNull(X) 'False
    X = 1
    Debug.Print IsNull(X) 'False
    X = "1"
    Debug.Print IsNull(X) 'False
End Sub
```

```

X = Null
Debug.Print IsNull(X)    'True
X = X*2
Debug.Print IsNull(X)    'True
End Sub

```

IsNumeric Function

Syntax IsNumeric(*expr*)

Group Variable Info

Description Return the **True** if *expr* is a numeric value.

Parameter	Description
-----------	-------------

<i>expr</i>	A variant expression is a numeric value if it is <i>numeric</i> or string value that represents a number.
-------------	---

See Also **TypeName**, **VarType**.

Example

```

Sub Main
    Dim X As Variant
    X = 1
    Debug.Print IsNumeric(X) 'True
    X = "1"
    Debug.Print IsNumeric(X) 'True
    X = "A"
    Debug.Print IsNumeric(X) 'False
End Sub

```

IsObject Function

Syntax IsObject(*var*)

Group Variable Info

Description Return the **True** if *var* contains an object reference.

Parameter	Description
-----------	-------------

<i>var</i>	A var contains an object reference if it is <i>objexpr</i> reference.
------------	---

See Also **TypeName**, **VarType**.

Example

```

Sub Main
    Dim X As Variant
    X = 1
    Debug.Print IsObject(X) 'False
    X = "1"
    Debug.Print IsObject(X) 'False
    Set X = Nothing
    Debug.Print IsObject(X) 'True
End Sub

```

Kill Instruction

Syntax Kill *Name\$*

Group File

Description Delete the file named by *Name\$*.

Parameter	Description
-----------	-------------

<i>Name\$</i>	This string value is the path and name of the file. A path relative to the current directory can be used.
---------------	---

```

Example           Sub Main
    Kill "XXX"
End Sub

```

LBound Function

Syntax LBound(*arrayvar* [, *dimension*])

Group Variable Info

Description Return the lowest index.

Parameter	Description
-----------	-------------

arrayvar Return the lowest index for this array variable.

dimension Return the lowest index for this dimension of *arrayvar*. If this is omitted then return the lowest index for the first dimension.

See Also UBound().

```

Example           Sub Main
    Dim A(-1 To 3, 2 To 6)
    Debug.Print LBound(A)    '-1
    Debug.Print LBound(A, 1) '-1
    Debug.Print LBound(A, 2) ' 2
End Sub

```

LCase\$ Function

Syntax LCase[\$] (S\$)

Group String

Description Return a string from S\$ where all the uppercase letters have been lowercased.

Parameter	Description
-----------	-------------

S\$ Return the string value of this after all chars have been converted to lowercase. If this value is **Null** then **Null** is returned.

See Also StrComp(), StrConv\$(), UCase\$().

```

Example           Sub Main
    Debug.Print LCase$("Hello") '"hello"
End Sub

```

Left\$ Function

Syntax Left[\$] (S\$, Len)

Group String

Description Return a string from S\$ with only the *Len* chars.

Note: A similar function, LeftB, returns the first *Len* bytes.

Parameter	Description
-----------	-------------

S\$ Return the left portion of this string value. If this value is **Null** then **Null** is returned.

Len Return this many chars. If S\$ is shorter than that then just return S\$.

See Also InStr(), InStrRev(), Len(), Mid\$(), Replace\$(), Right\$().

```

Example           Sub Main
    Debug.Print Left$("Hello", 2) '"He"
End Sub

```

Len Function

Syntax `Len (S$)`

-or-

`Len (usertypevar)`

Group String

Description Return the number of characters in *S\$*.

Note: A similar function, `LenB`, returns the number of bytes in the string. For a *usertypevar*, `LenB` returns the number of bytes of memory occupied by the variable's data.

Parameter	Description
<i>S\$</i>	Return the number of chars in this string value. If this value is Null then Null is returned.
<i>usertypevar</i>	Return the number of bytes required to store this user type variable. If the user type has any dynamic String and Variant elements the length returned may not be as big as the actual number of bytes required.

See Also `InStr()`, `InStrRev()`, `Left$()`, `Mid$()`, `Replace$()`, `Right$()`.

Example

```
Sub Main
    Debug.Print Len("Hello") ' 5
End Sub
```

Let Instruction

Syntax [`Let`] `var = expr`

Group Assignment

Description Assign the value of *expr* to *var*. The keyword `Let` is optional.

Example

```
Sub Main
    Let X = 1
    X = X*2
    Debug.Print X ' 2
End Sub
```

Like Operator

Syntax `str1 Like str2`

Group Operator

Description Return the **True** if *str1* matches pattern *str2*. The pattern in *str2* is one or more of the special character sequences shown in the following table.

Char(s)	Description
<code>?</code>	Match any single character.
<code>*</code>	Match zero or more characters.
<code>#</code>	Match a single digit (0-9).
<code>[charlist]</code>	Match any char in the list.
<code>[!charlist]</code>	Match any char not in the list.

Example

```
Sub Main
    Dim X As Object
    Dim Y As Object
    Debug.Print X Is Y ' True
End Sub
```

Line Input Instruction

Syntax `Line Input [#]StreamNum, S$`

Group File

Description Get a line of input from *StreamNum* and assign it to *S\$*.

See Also **Input, Print, Write.**

Example

```
Sub Main
  Open "XXX" For Input As #1
  Line Input #1,S$
  Debug.Print S$
  Close #1
```

End Sub

ListBox Dialog Item Definition

Syntax `ListBox X, Y, DX, DY, StrArray$(), .Field[, Options]`

Group User Dialog

Description Define a listbox item.

Parameter	Description
X	This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.
Y	This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.
DX	This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.
DY	This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.
StrArray\$()	This one-dimensional array of strings establishes the list of choices. All the non-null elements of the array are used.
Field	The value of the list box is accessed via this field. It is the index of the <i>StrArray\$()</i> var.
Options	This numeric value controls the type of list box. Choose one value from following table. (If this numeric value omitted then zero is used.)

Option	Description
0	List is not sorted.
2	List is sorted.

See Also **Begin Dialog, Dim As UserDialog.**

Example

```
Sub Main
  Dim lists$(3)
  lists$(0) = "List 0"
  lists$(1) = "List 1"
  lists$(2) = "List 2"
  lists$(3) = "List 3"
  Begin Dialog UserDialog 200,120
    Text 10,10,180,15,"Please push the OK button"
    ListBox 10,25,180,60,lists$(),.list
    OKButton 80,90,40,20
  End Dialog
  Dim dlg As UserDialog
  dlg.list = 2
  Dialog dlg ' show dialog (wait for ok)
  Debug.Print dlg.list
```

End Sub

Loc Function

Syntax `Loc (StreamNum)`

Group File

Description Return *StreamNum* file position. For Random mode files this is the current record number minus one. For Binary mode files it is the current byte position minus one. Otherwise, it is the current byte position minus one divided by 128. The first position in the file is 0.

Parameter	Description
<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.

Example

```

Sub Main
  Open "XXX" For Input As #1
  L = Loc(1)
  Close #1
  Debug.Print L ' 0
End Sub

```

Lock Instruction

Syntax `Lock StreamNum`

-or-

`Lock StreamNum, RecordNum`

-or-

`Lock StreamNum, [start] To end`

Group File

Description Form 1: Lock all of *StreamNum*.

Form 2: Lock a record (or byte) of *StreamNum*.

Form 3: Lock a range of records (or bytes) of *StreamNum*. If *start* is omitted then lock starting at the first record (or byte).

Note: Be sure to **Unlock** for each Lock instruction.

Note: For sequential files (Input, Output and Append) lock always affects the entire file.

Parameter	Description
<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.
<i>RecordNum</i>	For Random mode files this is the record number. The first record is 1. Otherwise, it is the byte position. The first byte is 1.
<i>start</i>	First record (or byte) in the range.
<i>end</i>	Last record (or byte) in the range.

See Also **Open, Unlock.**

Example

```

Sub Main
  Dim V As Variant
  Open "SAVE_V.DAT" For Binary As #1
  Lock #1
  Get #1, 1, V
  V = "Hello"
  Put #1, 1, V

```

```

Unlock #1
Close #1
End Sub

```

LOF Function

Syntax `LOF(StreamNum)`

Group File

Description Return *StreamNum* file length (in bytes).

Parameter	Description
-----------	-------------

<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.
------------------	--

Example

```

Sub Main
    Open "XXX" For Input As #1
    L = LOF(1)
    Close #1
    Debug.Print L
End Sub

```

Log Function

Syntax `Log(Num)`

Group Math

Description Return the natural logarithm.

Parameter	Description
-----------	-------------

<i>Num</i>	Return the natural logarithm of this numeric value. The value e is approximately 2.718282.
------------	--

Example

```

Sub Main
    Debug.Print Log(1) ' 0
End Sub

```

Long Data Type

Group Data Type

Description A 32 bit integer value.

LSet Instruction

Syntax `LSet strvar = str`

-or-

`LSet usertypevar1 = usertypevar2`

Group Assignment

Description Form 1: Assign the value of *str* to *strvar*. Shorten *str* by removing trailing chars (or extend with blanks). The previous length *strvar* is maintained.

Form 2: Assign the value of *usertypevar2* to *usertypevar1*. If *usertypevar2* is longer than *usertypevar1* then only copy as much as *usertypevar1* can handle.

See Also [RSet](#).

Example

```

Sub Main
    S$ = "123"
    LSet S$ = "A"

```

```

    Debug.Print ".";S$;"." ' ".A ."
End Sub

```

LTrim\$ Function

Syntax LTrim[\$] (S\$)

Group String

Description Return the string with S\$'s leading spaces removed.

Parameter	Description
-----------	-------------

S\$	Copy this string without the leading spaces. If this value is Null then Null is returned.
-----	---

See Also RTrim\$(), Trim\$().

Example Sub Main

```

    Debug.Print ".";LTrim$(" x ");"." ' ".x ."
End Sub

```

MacroDir\$ Function

Syntax MacroDir[\$]

Group Flow Control

Description Return the directory of the current macro. A run-time error occurs if the current macro has never been saved.

See Also MacroRun.

Example Sub Main

```

' open the file called Data that is in the
' same directory as the macro
Open MacroDir & "\Data" For Input As #1
Line Input #1, S$
Debug.Print S$
Close #1
End Sub

```

MacroRun Instruction

Syntax MacroRun MacroName\$[, Command\$]

Group Flow Control

Description Play a *macro*. Execution will continue at the following statement after the macro has completed.

Parameter	Description
-----------	-------------

MacroName\$	Run the macro named by this string value.
-------------	---

Command\$	Pass this string value as the macro's Command\$ value.
-----------	---

See Also Command\$, MacroDir\$, MacroRunThis.

Example Sub Main

```

    Debug.Print "Before Demo"
    MacroRun "Demo"
    Debug.Print "After Demo"
End Sub

```

MacroRunThis Instruction

Syntax MacroRunThis MacroCode\$

Group Flow Control

Description Play the *macro* code. Execution will continue at the following statement after the macro code has completed. The macro code can be either a single line or a complete macro.

Parameter	Description
<i>MacroName</i> \$	Run the macro named by this string value.
See Also	Command \$, MacroDir \$, MacroRun .
Example	<pre>Sub Main Debug.Print "Before Demo" MacroRunThis "MsgBox ""Hello""" Debug.Print "After Demo" End Sub</pre>

Main Sub

Syntax Sub Main()

```
...
End Sub
-or-
Private Sub Main()
    ...
End Sub
```

Group Declaration

Description Form 1: Each *macro* must define Sub Main. A macro is a "program". Running a macro starts the Sub Main and continues to execute until the subroutine finishes.

Form 2: A code *module* may define a Private Sub Main. This Sub Main is the **code module** initialization subroutine. If Main is not defined then no special initialization occurs.

See Also Code Module.

Me Object

Syntax Me

Group Object

Description Me references the current macro/module. It can be used like any other *object variable*, except that it's reference can't be changed.

See Also Set.

Example

```
Sub Main
    DoIt
    Me.DoIt ' calls the same sub
End Sub
Sub DoIt
    MsgBox "Hello"
End Sub
```

Mid\$ Function/Assignment

Syntax Mid[\$] (S\$, Index[, Len])

-or-

Mid[\$] (strvar, Index[, Len]) = S\$

Group String

Description Function: Return the substring of S\$ starting at Index for Len chars.

Instruction: Assign S\$ to the substring in strvar starting at Index for Len chars.

Note: A similar function, MidB, returns the Len bytes starting a byte Index.

Parameter	Description (Mid Function)
S\$	Copy chars from this string value. If this value is Null then Null is returned.
Index	Start copying chars starting at this index value. If the string is not that long then return a null string.
Len	Copy this many chars. If the S\$ does not have that many chars starting at Index then copy the remainder of S\$.

Parameter	Description (Mid Assignment)
strvar	Change part of this string.
Index	Change strvar starting at this index value. If the string is not that long then it is not changed.
Len	The number of chars copied is smallest of: the value of Len, the length of S\$ and the remaining length of strvar. (If this value is omitted then the number of chars copied is the smallest of: the length of S\$ and the remaining length of strvar.)
S\$	Copy chars from this string value.

See Also InStr(), Left(), Len(), Replace(), Right().

Example

```
Sub Main
    S$ = "Hello There"
    Mid$(S$,7) = "?????????"
    Debug.Print S$ "Hello ??????"
    Debug.Print Mid$("Hello",2,1) "e"
End Sub
```

Minute Function

Syntax Minute(dateexpr)

Group Time/Date

Description Return the minute of the hour (0 to 59).

Parameter	Description
dateexpr	Return the minute of the hour for this date value. If this value is Null then Null is returned.

See Also Hour(), Second(), Time().

Example

```
Sub Main
    Debug.Print Minute(#12:00:01 AM#) ' 0
End Sub
```

Mkdir Instruction

Syntax Mkdir Name\$

Group File

Description Make directory Name\$.

Parameter	Description
Name\$	This string value is the path and name of the directory. A path relative to the current directory can be used.

See Also Rmdir.

```

Example      Sub Main
                Mkdir "C:\WWTEMP"
End Sub

```

Month Function

Syntax Month(*dateexpr*)

Group Time/Date

Description Return the month of the year (1 to 12).

Parameter	Description
-----------	-------------

dateexpr Return the month of the year for this date value. If this value is **Null** then **Null** is returned.

See Also **Date()**, **Day()**, **MonthName()**, **Weekday()**, **Year()**.

```

Example      Sub Main
                Debug.Print Month(#1/1/1900#) ' 1
                Debug.Print Month(#2/1/1900#) ' 2
End Sub

```

MonthName Function

Syntax MonthName(NumZ{month}[, CondZ{abbrev}])

Group Time/Date

Description Return the localized name of the month.

Parameter	Description
-----------	-------------

month Return the localized name of this month. (1-12)

abbrev If this conditional value is **True** then return the abbreviated form of the month name.

See Also **Month()**.

```

Example      Sub Main
                Debug.Print MonthName(1) 'January
                Debug.Print MonthName(Month(Now))
End Sub

```

MsgBox Instruction/Function

Syntax MsgBox *Message\$*[, *Type*][, *Title\$*]

-or-

MsgBox(*Message\$*[, *Type*][, *Title\$*])

Group User Input

Description Show a message box titled *Title\$*. *Type* controls what the message box looks like (choose one value from each category). Use MsgBox() if you need to know what button was pressed. The result indicates which button was pressed.

Result	Value	Button Pressed
--------	-------	----------------

vbOK	1	OK button
vbCancel	2	Cancel button
vbAbort	3	Abort button
vbRetry	4	Retry button
vbIgnore	5	Ignore button
vbYes	6	Yes button
vbNo	7	No button

Parameter	Description
-----------	-------------

Message\$ This string value is the text that is shown in the message box.

Type This numeric value controls the type of message box. Choose one value from each of the following tables.
Title\$ This string value is the title of the message box.

Button	Value	Effect
vbOkOnly	0	OK button
vbOkCancel	1	OK and Cancel buttons
vbAbortRetryIgnore	2	Abort, Retry, Ignore buttons
vbYesNoCancel	3	Yes, No, Cancel buttons
vbYesNo	4	Yes and No buttons
vbRetryCancel	5	Retry and Cancel buttons

Icon	Value	Effect
	0	No icon
vbCritical	16	Stop icon
vbQuestion	32	Question icon
vbExclamation	48	Attention icon
vbInformation	64	Information icon

Default	Value	Effect
vbDefaultButton1	0	First button
vbDefaultButton2	256	Second button
vbDefaultButton3	512	Third button

Mode	Value	Effect
vbApplicationModal	0	Application modal
vbSystemModal	4096	System modal

```

Example      Sub Main
    MsgBox "Please press OK button"
    If MsgBox("Please press OK button",vbOkCancel) = vbOK Then
        Debug.Print "OK was pressed"
    Else
        Debug.Print "Cancel was pressed"
    End If
End Sub

```

Name Instruction

Syntax Name *OldName\$ As NewName\$*

Group File

Description Rename file *OldName\$* as *NewName\$*.

Parameter	Description
<i>OldName\$</i>	This string value is the path and name of the file. A path relative to the current directory can be used.
<i>NewName\$</i>	This is the new file name (and path). A path relative to the current directory can be used.

```

Example      Sub Main
    Name "AUTOEXEC.BAK" As "AUTOEXEC.SAV"
End Sub

```

Nothing Keyword

Group Constant**Description** An *objexpr* that does not refer to any object.

Now Function

Syntax Now**Group** Time/Date**Description** Return the current date and time as a **date** value.**See Also** **Date, Time, Timer.**

Example

```
Sub Main
    Debug.Print Now ' example: 1/1/1995 10:05:32 AM
End Sub
```

Null Keyword

Group Constant**Description** A *variant expression* that is null. A null value propagates through an expression causing the entire expression to be Null. Attempting to use a Null value as a string or numeric argument causes a run-time error. A Null value prints as "#NULL#".

Example

```
Sub Main
    X = Null
    Debug.Print X = Null ' #NULL#
    Debug.Print IsNull(X) ' True
End Sub
```

Object Data Type

Group Data Type**Description** An object reference value. (see **Objects**)

Object Module

Group Declaration**Description** An object *module* implements an ActiveX Automation object.

- It has a set of **Public procedures** accessible from other *macros* and *modules*.
- These public symbols are accessed via the name of the object module or an object variable.
- Public **Consts**, **Types**, arrays, fixed length strings are not allowed.
- An object module is similar to a **class module** except that one instance is automatically created. That instance has the same name as the object module's name.
- To create additional instances use:

```
Dim Obj As objectname
Set Obj = New objectname
```

See Also **Class Module, Code Module, Uses.**

Example

```
'A.WWB
'#Uses "System.OBM"
Sub Main
    Debug.Print Hex(System.Version)
End Sub
```



```
'System.OBM
'File|New Module|Object Module
'Edit|Properties|Name=System
Option Explicit
Declare Function GetVersion16 Lib "Kernel" _
    Alias "GetVersion" () As Long
Declare Function GetVersion32 Lib "Kernel32" _
    Alias "GetVersion" () As Long

Public Function Version() As Long
    If Win16 Then
        Version = GetVersion16
    Else
        Version = GetVersion32
    End If
End Function
```

Object_Initialize Sub

Syntax Private Sub Object_Initialize()

...
End Sub

Group Declaration

Description Object module initialization subroutine. Each time a new instance is created for a Object module the Object_Initialize sub is called. If Object_Initialize is not defined then no special initialization occurs.

Note: Object_Initialize is also called for the instance that is automatically created.

See Also Object Module, Object_Terminate.

Object_Terminate Sub

Syntax Private Sub Object_Terminate()

...
End Sub

Group Declaration

Description Object module termination subroutine. Each time an instance is destroyed for a Object module the Object_Terminate sub is called. If Object_Terminate is not defined then no special termination occurs.

See Also Object Module, Object_Initialize.

Oct\$ Function

Syntax Oct[\$] (Num)

Group String

Description Return a octal string.

Parameter	Description
-----------	-------------

Num	Return an octal encoded string for this numeric value.
-----	--

See Also Hex\$(), Str\$(), Val().

```

Example      Sub Main
                Debug.Print Oct$(15) '17
            End Sub

```

OKButton Dialog Item Definition

Syntax OKButton *X*, *Y*, *DX*, *DY*[, *.Field*]

Group User Dialog

Description Define an OK button item. Pressing the OK button updates the *dlgvar* field values and closes the dialog. (**Dialog()** function call returns -1.)

Parameter	Description
<i>X</i>	This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.
<i>Y</i>	This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.
<i>DX</i>	This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.
<i>DY</i>	This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.
<i>Field</i>	This identifier is the name of the field. The <i>dialogfunc</i> receives this name as <i>string</i> . If this is omitted then the field name is "OK".

See Also Begin Dialog, Dim As UserDialog.

```

Example      Sub Main
                Begin Dialog UserDialog 200,120
                    Text 10,10,180,30,"Please push the OK button"
                    OKButton 80,90,40,20
                End Dialog
                Dim dlg As UserDialog
                Dialog dlg ' show dialog (wait for ok)
            End Sub

```

On Error Instruction

Syntax On **Error** GoTo 0

-or-

On **Error** GoTo *label*

-or-

On **Error** Resume Next

Group Error Handling

Description Form 1: Disable the error handler (default).

Form 2: Send error conditions to an error handler.

Form 3: Error conditions continue execution at the next statement.

On Error sets or disables the error handler. Each user defined *procedure* has its own error handler. The default is to terminate the *macro* on any error. The **Err** object's properties are set whenever an error occurs. Once an error has occurred and the error handler is executing any further errors will terminate the macro, unless the **Err** object has been cleared.

Note: This instruction clears the **Err** and sets **Error\$** to null.

```
Example      Sub Main
On Error Resume Next
Err.Raise 1
Debug.Print "RESUMING, Err=";Err
On Error GoTo X
Err.Raise 1
Exit Sub

X:  Debug.Print "Err=";Err
    Err.Clear
    Debug.Print "Err=";Err
    Resume Next
End Sub
```

Open Instruction

Syntax Open *Name\$* For mode [Access access] [lock] As _
[#]*StreamNum* [Len = *RecordLen*]

Group File

Description Open file *Name\$* for mode as *StreamNum*.

Parameter	Description
<i>Name\$</i>	This string value is the path and name of the file. A path relative to the current directory can be used.
mode	May be Input, Output, Append, Binary or Random.
access	May be Read, Write or Read Write.
lock	May be Shared, Lock Read, Lock Write or Lock Read Write.
<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.
<i>RecordLen</i>	This numeric value is the record length for Random mode files. Other file modes ignore this value.

See Also Close, FileAttr, FreeFile, Reset.

```
Example      Sub Main
Open "XXX" For Output As #1
Print #1,"1,2,""Hello""
Close #1
End Sub
```

Operators

Syntax ^ Not * / \ Mod + - & < <= > >= = <> **Is** And Or Xor Eqv Imp

Description These operators are available for numbers *n1* and *n2* or strings *s1* and *s2*. If any value in an expression is **Null** then the expression's value is **Null**. The order of operator evaluation is controlled by operator *precedence*.

Operator	Description
- <i>n1</i>	Negate <i>n1</i> .
<i>n1</i> ^ <i>n2</i>	Raise <i>n1</i> to the power of <i>n2</i> .
<i>n1</i> * <i>n2</i>	Multiply <i>n1</i> by <i>n2</i> .
<i>n1</i> / <i>n2</i>	Divide <i>n1</i> by <i>n2</i> .
<i>n1</i> \ <i>n2</i>	Divide the integer value of <i>n1</i> by the integer value of <i>n2</i> .
<i>n1</i> Mod <i>n2</i>	Remainder of the integer value of <i>n1</i> after dividing by the integer value of <i>n2</i> .
<i>n1</i> + <i>n2</i>	Add <i>n1</i> to <i>n2</i> .

$s1 + s2$ Concatenate $s1$ with $s2$.
 $n1 - n2$ Difference of $n1$ and $n2$.
 $s1 \& s2$ Concatenate $s1$ with $s2$.
 $n1 < n2$ Return **True** if $n1$ is less than $n2$.
 $n1 \leq n2$ Return **True** if $n1$ is less than or equal to $n2$.
 $n1 > n2$ Return **True** if $n1$ is greater than $n2$.
 $n1 \geq n2$ Return **True** if $n1$ is greater than or equal to $n2$.
 $n1 = n2$ Return **True** if $n1$ is equal to $n2$.
 $n1 \neq n2$ Return **True** if $n1$ is not equal to $n2$.
 $s1 < s2$ Return **True** if $s1$ is less than $s2$.
 $s1 \leq s2$ Return **True** if $s1$ is less than or equal to $s2$.
 $s1 > s2$ Return **True** if $s1$ is greater than $s2$.
 $s1 \geq s2$ Return **True** if $s1$ is greater than or equal to $s2$.
 $s1 = s2$ Return **True** if $s1$ is equal to $s2$.
 $s1 \neq s2$ Return **True** if $s1$ is not equal to $s2$.
Not $n1$ Bitwise invert the integer value of $n1$. Only Not **True** is **False**.
 $n1$ And $n2$ Bitwise and the integer value of $n1$ with the integer value $n2$.
 $n1$ Or $n2$ Bitwise or the integer value of $n1$ with the integer value $n2$.
 $n1$ Xor $n2$ Bitwise exclusive-or the integer value of $n1$ with the integer value $n2$.
 $n1$ Eqv $n2$ Bitwise equivalence the integer value of $n1$ with the integer value $n2$ (same as Not ($n1$ Xor $n2$)).
 $n1$ Imp $n2$ Bitwise implicate the integer value of $n1$ with the integer value $n2$ (same as (Not $n1$) Or $n2$).

Example**Sub Main**

```

N1 = 10
N2 = 3
S1$ = "asdfg"
S2$ = "hijkl"
Debug.Print -N1           '-10
Debug.Print N1 ^ N2       ' 1000
Debug.Print Not N1        '-11
Debug.Print N1 * N2       ' 30
Debug.Print N1 / N2       ' 3.33333333333333
Debug.Print N1 \ N2       ' 3
Debug.Print N1 Mod N2     ' 1
Debug.Print N1 + N2       ' 13
Debug.Print S1$ + S2$     '"asdfghijkl"
Debug.Print N1 - N2       ' 7
Debug.Print N1 & N2       '"103"
Debug.Print N1 < N2       'False
Debug.Print N1 <= N2      'False
Debug.Print N1 > N2       'True
Debug.Print N1 >= N2      'True
Debug.Print N1 = N2       'False
Debug.Print N1 <> N2      'True
Debug.Print S1$ < S2$     'True
Debug.Print S1$ <= S2$    'True
Debug.Print S1$ > S2$     'False
Debug.Print S1$ >= S2$    'False
Debug.Print S1$ = S2$     'False
Debug.Print S1$ <> S2$    'True
Debug.Print N1 And N2     ' 2
Debug.Print N1 Or N2      ' 11
Debug.Print N1 Xor N2     ' 9
Debug.Print N1 Eqv N2     ' -10

```

```

    Debug.Print N1 Imp N2 ' -9
End Sub

```

Option Definition

Syntax Option Base [0|1]

-or-

Option Explicit

-or-

Option Private Module

Group Declaration

Description Form 1: Set the default base index for array declarations. Affects **Dim**, **Static**, **Private**, **Public** and **ReDim**. Does not affect **Array**, **ParamArray** or arrays declare in a **Type**. Option Base 0 is the default.

Form 2: Require all variables to be declared prior to use. Variables are declared using **Dim**, **Private**, **Public**, **Static** or as a parameter of **Sub**, **Function** or **Property** blocks.

Form 3: Public symbols defined by the module are only accessible from the same project.

See Also **Dim**, **Private**, **Public**, **ReDim**, **Static**.

Example Option Base 1

Option Explicit

```

Sub Main
    Dim A
        Dim C(2) ' same as Dim C(1 To 2)
        Dim D(0 To 2)
    A = 1
    B = 2 ' B has not been declared
End Sub

```

OptionButton Dialog Item Definition

Syntax OptionButton X, Y, DX, DY, Title\$[, .Field]

Group User Dialog

Description Define an option button item.

Parameter	Description
X	This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.
Y	This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.
DX	This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.
DY	This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.
Title\$	The value of this string is the title of the option button.

See Also **Begin Dialog**, **Dim As UserDialog**, **OptionGroup**.

Example Sub Main

```

Begin Dialog UserDialog 200,120

```

```

    Text 10,10,180,15,"Please push the OK button"

```

```

    OptionGroup .options
End Sub

```

```

        OptionButton 10,30,180,15,"Option &0"
        OptionButton 10,45,180,15,"Option &1"
        OptionButton 10,60,180,15,"Option &2"
    OKButton 80,90,40,20
End Dialog
Dim dlg As UserDialog
dlg.options = 2
Dialog dlg ' show dialog (wait for ok)
Debug.Print dlg.options
End Sub

```

OptionGroup Dialog Item Definition

Syntax OptionGroup *.Field*

OptionButton *X, Y, DX, DY, Title\$[, .Field]*

OptionButton *X, Y, DX, DY, Title\$[, .Field]*

...

Group User Dialog

Description Define a optiongroup and option button items.

Parameter	Description
-----------	-------------

Field The value of the option group is accessed via this field. This first option button is 0, the second is 1, etc.

X This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.

Y This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.

DX This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.

DY This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.

Title\$ The value of this string is the title of the option button.

See Also **Begin Dialog, Dim As UserDialog, OptionButton.**

Example Sub Main

```

Begin Dialog UserDialog 200,120
    Text 10,10,180,15,"Please push the OK button"
    OptionGroup .options
        OptionButton 10,30,180,15,"Option &0"
        OptionButton 10,45,180,15,"Option &1"
        OptionButton 10,60,180,15,"Option &2"
    OKButton 80,90,40,20
End Dialog
Dim dlg As UserDialog
dlg.options = 2
Dialog dlg ' show dialog (wait for ok)
Debug.Print dlg.options

```

End Sub

Picture Dialog Item Definition

Syntax Picture *X, Y, DX, DY, FileName\$, Type[, .Field]*

Group User Dialog

Description Define a picture item. The bitmap is automatically sized to fit the item's entire area.

Parameter	Description
-----------	-------------

X This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.

Y This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.

DX This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.

DY This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.

FileName\$ The value of this string is the .BMP file shown in the picture control.

Type This numeric value indicates the type of bitmap used. See below.

Field This identifier is the name of the field. The *dialogfunc* receives this name as *string*. If this identifier is omitted then the first two words of the title are used.

Type	Effect
------	--------

0	<i>FileName</i> is the name of the bitmap file. If the file does not exist then "(missing picture)" is displayed.
3	The clipboard's bitmap is displayed. Not supported.
+16	Instead of displaying "(missing picture)" a run-time error occurs.

See Also [Begin Dialog](#), [Dim As UserDialog](#).

Example

```

Sub Main
    Begin Dialog UserDialog 200,120
        Picture 10,10,180,75,"SAMPLE.BMP",0
        OKButton 80,90,40,20
    End Dialog
    Dim dlg As UserDialog
    Dialog dlg ' show dialog (wait for ok)
End Sub

```

PortInt Data Type

Group Data Type

Description A portable integer value.

- For Win16: A 16 bit integer value.
- For Win32: A 32 bit integer value.

Print Instruction

Syntax `Print #StreamNum, [expr[; ...][;]]`

Group File

Description Print the *expr(s)* to *StreamNum*. Use ; to separate expressions. A *num* is it automatically converted to a string before printing (just like **Str\$()**). If the instruction does not end with a ; then a newline is printed at the end.

See Also [Input](#), [Line Input](#), [Write](#).

Example

```

Sub Main
    A = 1
    B = 2
    C$ = "Hello"
    Open "XXX" For Output As #1
    Print #1,A;"",B;"","";C$;""
    Close #1
End Sub

```

Private Definition

Syntax `Private [WithEvents] name[type]([dim[, ...]]) [As [New] type][, ...]`

Group Declaration

Description Create arrays (or simple variables) which are available to the entire *macro/module*, but not other macros/modules. Dimension var array(s) using the *dims* to establish the minimum and maximum index value for each dimension. If the *dims* are omitted then a scalar (single value) variable is defined. A dynamic array is declared using () without any *dims*. It must be **ReDimensioned** before it can be used. The Private statement must be placed outside of **Sub**, **Function** or **Property** blocks.

See Also **Dim**, **Option Base**, **Public**, **ReDim**, **Static**, **WithEvents**.

Example `Private A0,A1(1),A2(1,1)`

```
Sub Init
    A0 = 1
    A1(0) = 2
    A2(0,0) = 3
End Sub

Sub Main
    Init
    Debug.Print A0;A1(0);A2(0,0) ' 1 2 3
End Sub
```

Private Keyword

Group Declaration

Description **Private** **Consts**, **Declares**, **Functions**, **Property**s, **Subs** and **Type**s are only available in the current *macro/module*.

Property Definition

Syntax [| **Private** | **Public** | **Friend**]
 Property **Get** *name*[*type*][([*param*[, ...]])] [*As type*[()]]
 statements
End Property

-or-

[| **Private** | **Public** | **Friend**]
 Property [**Let**|**Set**] *name*[(*param*[, ...]])]
 statements
End Property

Group Declaration

Description User defined property. The property defines a set of *statements* to be executed when its value is used or changed. A property acts like a variable, except that getting its value calls Property Get and changing its value calls Property Let (or Property Set). Property Get and Property Let with the same *name* define a property that holds a value. Property Get and Property Set with the same *name* define a property that holds an object reference. The values of the calling *arglist* are assigned to the *params*. (For Property Let and Property Set the last parameter is the value on the right hand side of the assignment operator.)

Property defaults to **Public** if **Private**, **Public** or **Friend** are not is specified.

See Also **Function, Sub.****Example** `Dim X_Value`

```
Property Get X()
    X = X_Value
End Property
```

```
Property Let X(NewValue)
    If Not IsNull(NewValue) Then X_Value = NewValue
End Property
```

```
Sub Main
    X = "Hello"
    Debug.Print X
    X = Null
    Debug.Print X
End Sub
```

Public Definition

Syntax `Public [WithEvents] name[type]([dim[, ...]]) [As [New] type][, ...]`
Group Declaration

Description Create arrays (or simple variables) which are available to the entire *macro/module* and other macros/modules. Dimension var array(s) using the *dims* to establish the minimum and maximum index value for each dimension. If the *dims* are omitted then a scalar (single value) variable is defined. A dynamic array is declared using () without any *dims*. It must be **ReDimensioned** before it can be used. The Public statement must be placed outside of **Sub**, **Function** or **Property** blocks.

See Also **Dim, Option Base, Private, ReDim, Static, WithEvents.****Example** `Public A0,A1(1),A2(1,1)`

```
Sub Init
    A0 = 1
    A1(0) = 2
    A2(0,0) = 3
End Sub
```

```
Sub Main
    Init
    Debug.Print A0;A1(0);A2(0,0) ' 1 2 3
End Sub
```

Public Keyword

Group Declaration

Description **Public** **Consts**, **Declares**, **Functions**, **Propertys**, **Subs** and **Types** in a *module* are available in all other *macros/modules* that access it.

PushButton Dialog Item Definition

Syntax `PushButton X, Y, DX, DY, Title$[, .Field]`

Group User Dialog

Description Define a push button item. Pressing the push button updates the *dlgvar* field values and closes the dialog. (**Dialog()** function call returns the push button's ordinal number in the dialog. The first push button returns 1.)

Parameter	Description
<i>X</i>	This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.
<i>Y</i>	This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.
<i>DX</i>	This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.
<i>DY</i>	This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.
<i>Title\$</i>	The value of this string is the title of the push button control.
<i>Field</i>	This identifier is the name of the field. The <i>dialogfunc</i> receives this name as <i>string</i> . If this identifier is omitted then the first two words of the title are used.

See Also **Begin Dialog, Dim As UserDialog.**

Example

```

Sub Main
    Begin Dialog UserDialog 200,120
        Text 10,10,180,30,"Please push the DoIt button"
        OKButton 40,90,40,20
        PushButton 110,90,60,20,"&Do It"
    End Dialog
    Dim dlg As UserDialog
    Debug.Print Dialog(dlg)
End Sub

```

Put Instruction

Syntax Put *StreamNum*, [*RecordNum*], *var*

Group File

Description Write a variable's value to *StreamNum*.

Parameter	Description
<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.
<i>RecordNum</i>	For Random mode files this is the record number. The first record is 1. Otherwise, it is the byte position. The first byte is 1. If this is omitted then the current position (or record number) is used.
<i>var</i>	This variable value is written to the file. For a fixed length variable (like Long) the number of bytes required to store the variable are written. For a Variant variable two bytes which describe its type are written and then the variable value is written accordingly. For a <i>usertype</i> variable each field is written in sequence. For an array variable each element is written in sequence. For a dynamic array variable the number of dimensions and range of each dimension is written prior to writing the array values. All binary data values are written to the file in <i>little-endian</i> format.

Note: When a writing string (or a dynamic array) to a Binary mode file the string length (or array dimension) information is not written. Only the string data or array elements are written.

See Also **Get, Open.**

Example

```

Sub Main
    Dim V As Variant
    Open "SAVE_V.DAT" For Binary Access Write As #1
    Put #1, , V
    Close #1
End Sub

```

QBColor Function

Syntax QBColor(*num*)

Group Miscellaneous

Description Return the appropriate color defined by Quick Basic.

num	color
0	black
1	blue
2	green
3	cyan
4	red
5	magenta
6	yellow
7	white
8	gray
9	light blue
10	light green
11	light cyan
12	light red
13	light magenta
14	light yellow
15	bright white

See Also RGB().

Example Sub Main

```

Debug.Print Hex(QBColor(1))  "'800000"
Debug.Print Hex(QBColor(7))  "'C0C0C0"
Debug.Print Hex(QBColor(8))  "'808080"
Debug.Print Hex(QBColor(9))  "'FF0000"
Debug.Print Hex(QBColor(10)) "'FF00"
Debug.Print Hex(QBColor(12)) "'FF"
Debug.Print Hex(QBColor(15)) "'FFFFFF"

```

End Sub

Randomize Instruction

Syntax Randomize [*Seed*]

Group Math

Description Randomize the random number generator.

Parameter	Description
<i>Seed</i>	This numeric value sets the initial seed for the random number generator. If this value is omitted then the current time is used as the seed.

See Also Rnd().

Example Sub Main

```

Randomize
Debug.Print Rnd ' 0.??????????????

```

End Sub

ReDim Instruction

Syntax ReDim [*Preserve*] *name*[*type*][([*dim*[, ...]])] [*As type*][, ...]

-or-

ReDim [*Preserve*] *usertypevar.elem*[*type*][([*dim*[, ...]])] [*As type*][, ...]

Group Declaration

Description Redimension a dynamic *arrayvar* or *user defined type* array element. Use Preserve to keep the array values. Otherwise, the array values will all be reset. When using preserve only the last index of the array may change, but the number of indexes may not. (A one-dimensional array can't be redimensioned as a two-dimensional array.)

See Also **Dim, Option Base, Private, Public, Static.**

Example

```
Sub Main
    Dim X()
    ReDim X(3)
    Debug.Print UBound(X) ' 3
    ReDim X(200)
    Debug.Print UBound(X) ' 200
```

End Sub

Reference Comment

Syntax '#Reference {uuid}#vermajor.verminor#lcid#[path[#name]]

Description The Reference comment indicates that the current *macro/module* references the type library identified. Reference comment lines must be the first lines in the macro/module (following the global **Attributes**). Reference comments are in reverse priority (from lowest to highest). The IDE does not display the reference comments.

Parameter	Description
uuid	Type library's universally unique identifier.
vermajor	Type library's major version number.
verminor	Type library's minor version number.
lcid	Type library's locale identifier.
path	Type library's path.
name	Type library's name.

Example '#Reference {00025E01-0000-0000-C000-000000000046}#4.0#0#C:\PROGRAM FILES\COMMON FILES\MICROSOFT SHARED\DAO\DAO350.DLL#Microsoft DAO

3.5 **Object Library**

Rem Instruction

Syntax Rem ...

-or-
'...

Group Miscellaneous

Description Both forms are comments. The Rem form is an instruction. The ' form can be used at the end of any line. All text from either ' or Rem to the end of the line is part of the comment. That text is not executed.

Example

```
Sub Main
    Debug.Print "Hello" ' prints to the output window
    Rem the macro terminates at Main's End Sub
```

End Sub

Replace\$ Function

Syntax Replace[\$](S\$, Pat\$, Rep\$, [Index], [Count])

Group String

Description Replace *Pat\$* with *Rep\$* in *S\$*.

Parameter	Description
-----------	-------------

<i>S\$</i>	This string value is searched. Replacements are made in the string returned by Replace.
------------	---

<i>Pat\$</i>	This string value is the pattern to look for.
--------------	---

<i>Rep\$</i>	This string value is the replacement.
--------------	---------------------------------------

<i>Index</i>	This numeric value is the starting index in <i>S\$</i> . Replace(<i>S</i> , <i>Pat</i> , <i>Rep</i> , <i>N</i>) is equivalent to Replace(Mid(<i>S</i> , <i>N</i>), <i>Pat</i> , <i>Rep</i>). If this is omitted use 1.
--------------	---

<i>Count</i>	This numeric value is the maximum number of replacements that will be done. If this is omitted use -1 (which means replace all occurrences).
--------------	--

See Also InStr(), InStrRev(), Left\$(), Len(), Mid\$(), Right\$().

Example Sub Main

```
Debug.Print Replace$("abcabc", "b", "B")      '"aBcaBc"
```

```
Debug.Print Replace$("abcabc", "b", "B", , 1) '"aBcabc"
```

```
Debug.Print Replace$("abcabc", "b", "B", 3)    '"caBc"
```

```
Debug.Print Replace$("abcabc", "b", "B", 9)    '""
```

End Sub

Reset Instruction

Syntax Reset

Group File

Description Close all open streams for the current *macro/module*.

See Also Close, Open.

Example Sub Main

```
' read the first line of XXX and print it
```

```
Open "XXX" For Input As #1
```

```
Line Input #1, L$
```

```
Debug.Print L$
```

```
Reset
```

End Sub

Resume Instruction

Syntax Resume *label*

-or-

Resume Next

Group Error Handling

Description Form 1: Resume execution at *label*.

Form 2: Resume execution at the next statement.

Once an error has occurred, the error handler can use Resume to continue execution. The error handler must use Resume or **Exit** at the end.

Note: This instruction clears the **Err** and sets **Error\$** to null.

Example Sub Main

```
On Error GoTo X
```

```
Err.Raise 1
```

```
Debug.Print "RESUMING"
```

```
Exit Sub
```

```
X:  Debug.Print "Err=";Err
    Resume Next
End Sub
```

RGB Function

Syntax RGB(*red*, *green*, *blue*)

Group Miscellaneous

Description Return a color.

See Also QBColor().

Example Sub Main
 Debug.Print Hex (RGB (255,0,0)) "FF0000"
End Sub

Right\$ Function

Syntax Right[\$] (*S\$*, *Len*)

Group String

Description Return the last *Len* chars of *S\$*.

Note: A similar function, RightB, returns the last *Len* bytes.

Parameter	Description
-----------	-------------

<i>S\$</i>	Return the right portion of this string value. If this value is Null then Null is returned.
------------	---

<i>Len</i>	Return this many chars. If <i>S\$</i> is shorter than that then just return <i>S\$</i> .
------------	--

See Also InStr(), InStrRev(), Left\$(), Len(), Mid\$(), Replace\$().

Example Sub Main
 Debug.Print Right\$("Hello",3) "llo"
End Sub

Rmdir Instruction

Syntax Rmdir *Name\$*

Group File

Description Remove directory *Name\$*.

Parameter	Description
-----------	-------------

<i>Name\$</i>	This string value is the path and name of the directory. A path relative to the current directory can be used.
---------------	--

See Also Mkdir.

Example Sub Main
 Rmdir "C:\WWTEMP"
End Sub

Rnd Function

Syntax Rnd ([*Num*])

Group Math

Description Return a random number greater than or equal to zero and less than one.

Parameter	Description
-----------	-------------

<i>Num</i>	See table below.
------------	------------------

Num	Description
<0	Return the same number every time, using <i>Num</i> as the seed.
>0	Return the next random number in the sequence.
0	Return the most recently generated number.
omitted	Return the next random number in the sequence.
See Also	Randomize.
Example	<pre> Sub Main Debug.Print Rnd() ' 0.???????????????? End Sub </pre>

Round Function

Syntax Round([*Num*][, *Places*])

Group Math

Description Return the number rounded to the specified number of decimal places.

Parameter	Description
-----------	-------------

Num Round this numeric value. If this value is **Null** then **Null** is returned.

Places Round to this number of decimal places. If this is omitted then round to the nearest integer value.

Example

```

Sub Main
    Debug.Print Round(.5)           ' 0
    Debug.Print Round(.500001)      ' 1
    Debug.Print Round(1.499999)     ' 1
    Debug.Print Round(1.5)          ' 2
    Debug.Print Round(11.11)        ' 11
    Debug.Print Round(11.11,1)      ' 11.1
End Sub

```

RSet Instruction

Syntax RSet *strvar* = *str*

Group Assignment

Description Assign the value of *str* to *strvar*. Shorten *str* by removing trailing chars (or extend with leading blanks). The previous length *strvar* is maintained.

See Also LSet.

Example

```

Sub Main
    S$ = "123"
    RSet S$ = "A"
    Debug.Print ".";S$;". " ' ". A."
End Sub

```

RTrim\$ Function

Syntax RTrim[\$] (*S\$*)

Group String

Description Return the string with *S\$*'s trailing spaces removed.

Parameter	Description
-----------	-------------

S\$ Copy this string without the trailing spaces. If this value is **Null** then **Null** is returned.

See Also LTrim(), Trim().

```

Example      Sub Main
    Debug.Print ".";RTrim$("  x  ");"." ' ".  x."
End Sub

```

SaveSetting Instruction

Syntax `SaveSetting AppName$, Section$, Key$, Setting`

Group Settings

Description Save the *Setting* for *Key* in *Section* in project *AppName*. Win16 and Win32s store settings in a .ini file named *AppName*. Win32 stores settings in the registration database.

Parameter	Description
<i>AppName\$</i>	This string value is the name of the project which has this <i>Section</i> and <i>Key</i> .
<i>Section\$</i>	This string value is the name of the section of the project settings.
<i>Key\$</i>	This string value is the name of the key in the section of the project settings.
<i>Setting</i>	Set the key to this value. (The value is stored as a string.)

```

Example      Sub Main
    SaveSetting "MyApp", "Font", "Size", 10
End Sub

```

Second Function

Syntax `Second(dateexpr)`

Group Time/Date

Description Return the second of the minute (0 to 59).

Parameter	Description
-----------	-------------

dateexpr Return the second of the minute for this date value. If this value is **Null** then **Null** is returned.

See Also `Hour()`, `Minute()`, `Time()`.

```

Example      Sub Main
    Debug.Print Second(#12:00:01 AM#) ' 1
End Sub

```

Seek Instruction

Syntax `Seek [#]StreamNum, Count`

Group File

Description Position *StreamNum* for input *Count*.

Parameter	Description
-----------	-------------

StreamNum Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.

Count For Random mode files this is the record number. The first record is 1. Otherwise, it is the byte position. The first byte is 1.

See Also `Seek()`.

```

Example      Sub Main
    Open "XXX" For Input As #1
    Line Input #1, L$
    Seek #1, 1 ' rewind to start of file
    Input #1, A
    Close #1

```



```

    Debug.Print A
End Sub

```

Seek Function

Syntax `Seek(StreamNum)`

Group File

Description Return *StreamNum* current position. For Random mode files this is the record number. The first record is 1. Otherwise, it is the byte position. The first byte is 1.

Parameter	Description
<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.

See Also [Seek](#).

Example

```

Sub Main
    Open "XXX" For Input As #1
    Debug.Print Seek(1) ' 1
    Line Input #1, L$
    Debug.Print Seek(1)
    Close #1
End Sub

```

Select Case Statement

Syntax `Select Case expr`

```

[Case caseexpr[, ...]
    statements]...
[Case Else
    statements]
End Select

```

End Select

Group Flow Control

Description Select the appropriate case by comparing the *expr* with each of the caseexprs. Select the Case Else part if no caseexpr matches. (If the Case Else is omitted then skip the entire Select...End Select block.)

caseexpr Description

expr Execute if equal.
Is < expr Execute if less than.
Is <= expr Execute if less than or equal to.
Is > expr Execute if greater than.
Is >= expr Execute if greater than or equal to.
Is <> expr Execute if not equal to.
expr1 To expr2 Execute if greater than or equal to *expr1* and less than or equal to *expr2*.

See Also [If](#), [Choose\(\)](#), [IIf\(\)](#).

Example

```

Sub Main
    S = InputBox("Enter hello, goodbye, dinner or sleep:")
    Select Case UCase(S)
    Case "HELLO"
        Debug.Print "come in"
    Case "GOODBYE"
        Debug.Print "see you later"
    Case "DINNER"
        Debug.Print "Please come in."
    End Select
End Sub

```

```

    Debug.Print "Dinner will be ready soon."
Case "SLEEP"
    Debug.Print "Sorry."
    Debug.Print "We are full for the night"
Case Else
    Debug.Print "What?"
End Select
End Sub

```

SendKeys Instruction

Syntax SendKeys *Keys\$* [, *Wait*]

Group Miscellaneous

Description Send *Keys\$* to Windows.

Parameter	Description
<i>Keys\$</i>	Send the keys in this string value to Windows.
<i>Wait</i>	If this is not zero then the keys are sent before executing the next instruction. If this is omitted or zero then the keys are sent during the following instructions.

Keys\$	Description			
+	Shift modifier key: the following key is a shifted key			
^	Ctrl modifier key: the following key is a control key			
%	Alt modifier key: the following key is an alt key			
~	Enter key			
(keys)	Modifiers apply to all keys			
{special n}	special key (n is an optional repeat count)			
k	k Key (k is any single char)			
K	Shift k Key (K is any capital letter)			
Special Keys	Key	Description	Key	Description
k	k Key (any single char)	K	shift k Key	
	Left	Left Arrow Key		
Cancel	Break Key	Right	Right Arrow Key	
Esc or Escape		Up	Up Arrow Key	
	Escape Key	Down	Down Arrow Key	
Enter	Enter Key	PgUp	Page Up Key	
Menu	Menu Key (Alt)	PgDn	Page Down Key	
Help	Help Key (?)	Home	Home Key	
Prtsc	Print Screen Key	End	End Key	
Print	? Select ?			
Execute?	Clear	Num Pad 5 Key		
Tab	Tab Key	Pad0 to Pad9		
Pause	Pause Key	Num Pad 0-9 Keys		
BS, BkSp or BackSpace	Pad*	Num Pad * Key		
	Back Space Key	Pad+	Num Pad + Key	
Del or Delete	PadEnter	Num Pad Enter		
	Delete Key	Pad-	Num Pad - Key	
Ins or Insert	Pad.	Num Pad . Key		

Insert Key Pad/ Num Pad / Key
F1 to F24 F1 to F24 Keys

See Also **AppActivate, Shell().**

Example **Sub** Main
 SendKeys "%S" ' send Alt-S (Search)
 SendKeys "GoTo~~" ' send G o T o {Enter} {Enter}
End Sub

Set Instruction

Syntax Set *objvar* = *objexpr*

-or-

Set *objvar* = **New** *objtype*

Group Assignment

Description Form 1: Set *objvar*'s object reference to the object reference of *objexpr*.

Form 2: Set *objvar*'s object reference to the a new instance of *objtype*.

The Set instruction is how object references are assigned.

Example **Sub** Main
 Dim App As **Object**
 Set App = **CreateObject**("WinWrap.CppDemoApplication")
 App.Move 20,30 ' move icon to 20,30
 Set App = **Nothing**
 App.Quit ' run-time error (no object)
End Sub

SetAttr Instruction

Syntax SetAttr *Name\$, Attrib*

Group File

Description Set the *attributes* for file *Name\$*. If the file does not exist then a run-time error occurs.

Parameter	Description
-----------	-------------

Name\$ This string value is the path and name of the file. A path relative to the current directory can be used.

Attrib Set the file's *attributes* to this numeric value.

Example **Sub** Main
 Attrib = **GetAttr**("XXX")
 SetAttr "XXX",1 ' readonly
 Debug.Print **GetAttr**("XXX") ' 1
 SetAttr "XXX",Attrib
End Sub

Sgn Function

Syntax Sgn (*Num*)

Group Math

Description Return the sign.

Parameter	Description
-----------	-------------

Num Return the sign of this numeric value. Return -1 for negative. Return 0 for zero. Return 1 for positive.

```
Example      Sub Main
    Debug.Print Sgn(9)   ' 1
    Debug.Print Sgn(0)   ' 0
    Debug.Print Sgn(-9)  '-1
```

```
End Sub
```

Shell Function

Syntax `Shell(Name$, WindowType)`

Group Miscellaneous

Description Execute program *Name\$*. This is the same as using File|Run from the Program Manager. This instruction can run .COM, .EXE, .BAT and .PIF files. If successful, return the task ID.

Parameter	Description
<i>Name\$</i>	This string value is the path and name of the program to run. Command line arguments follow the program name. (A long file name containing a space must be surrounded by literal double quotes.)
<i>WindowType</i>	This controls how the application's main window is shown. See the table below.

WindowType	Value	Effect
vbHide	0	Hide Window
vbNormalFocus	1, 5, 9	Normal Window
vbMinimizedFocus	2	Minimized Window (default)
vbMaximizedFocus	3	Maximized Window
vbNormalNoFocus	4, 8	Normal Deactivated Window
vbMinimizedNoFocus	6, 7	Minimized Deactivated Window

See Also **AppActivate**, **SendKeys**.

```
Example      Sub Main
    X = Shell("Calc") ' run the calc program
    AppActivate X
    SendKeys "% R" ' restore calc's main window
    SendKeys "30*2{+}10=",1 '70
```

```
End Sub
```

Sin Function

Syntax `Sin(Num)`

Group Math

Description Return the sine.

Parameter	Description
<i>Num</i>	Return the sine of this numeric value. This is the number of radians. There are 2*Pi radians in a full circle.

```
Example      Sub Main
    Debug.Print Sin(1) ' 0.8414709848079
```

```
End Sub
```

Single Data Type

Group Data Type

Description A 32 bit real value.

Space\$ Function

Syntax Space[\$] (*Len*)

Group String

Description Return the string *Len* spaces long.

Parameter	Description
-----------	-------------

<i>Len</i>	Create a string this many spaces long.
------------	--

See Also String\$().

Example

```
Sub Main
    Debug.Print ".";Space$(3);"." ' ".    ."
End Sub
```

Sqr Function

Syntax Sqr (*Num*)

Group Math

Description Return the square root.

Parameter	Description
-----------	-------------

<i>Num</i>	Return the square root of this numeric value.
------------	---

Example

```
Sub Main
    Debug.Print Sqr(9) ' 3
End Sub
```

Static Definition

Syntax Static *name*[*type*][([*dim*[, ...]])] [*As* [*New*] *type*][, ...]

Group Declaration

Description A static variable retains its value between *procedure* calls. Dimension var array(s) using the *dims* to establish the minimum and maximum index value for each dimension. If the *dims* are omitted then a scalar (single value) variable is defined. A dynamic array is declared using () without any *dims*. It must be **ReDimensioned** before it can be used.

See Also Dim, Option Base, Private, Public, ReDim.

Example

```
Sub A
```

```
    Static X
    Debug.Print X
    X = "Hello"
```

```
End Sub
```

```
Sub Main
```

```
    A
    A ' prints "Hello"
```

```
End Sub
```

Stop Instruction

Syntax Stop

Group Flow Control

Description Pause execution. If execution is resumed then it starts at the next instruction. Use **End** to terminate the *macro* completely.

Example

```

Sub Main
  For I = 1 To 10
    Debug.Print I
    If I = 3 Then Stop
  Next I
End Sub

```

Str\$ Function

Syntax Str[\$] (*Num*)

Group String

Description Return the string representation of *Num*.

Parameter	Description
-----------	-------------

Len Return the string representation of this numeric value. Positive values begin with a blank. Negative values begin with a dash '-'.
See Also CStr(), Hex\$(), Oct\$(), Val().

Example

```

Sub Main
  Debug.Print Str$(9*9) ' 81
End Sub

```

StrComp\$ Function

Syntax StrComp(*Str1*, *Str2*, *Comp*)

Group String

Description Compare two strings.

Parameter	Description
-----------	-------------

Str1 Compare this string with *Str2*. If this value is **Null** then **Null** is returned.

Str2 Compare this string with *Str1*. If this value is **Null** then **Null** is returned.

Comp This numeric value indicates the type of comparison. If this is omitted or zero then binary comparison is used. Otherwise, text comparison is used. (Text comparison is not case sensitive.)

Result	Description
--------	-------------

-1 *Str1* is less than *Str2*.

0 *Str1* is equal to *Str2*.

1 *Str1* is greater than *Str2*.

Null *Str1* or *Str2* is **Null**.

See Also LCase\$(), StrConv\$(), UCase\$().

Example

```

Sub Main
  Debug.Print StrComp("F","e") ' -1
  Debug.Print StrComp("F","e",1) ' 1
  Debug.Print StrComp("F","f",1) ' 0
End Sub

```

StrConv\$ Function

Syntax StrConv[\$] (*Str*, *Conv*)

Group String

Description Convert the string.

Parameter	Description
-----------	-------------

Str Convert this string value. If this value is **Null** then **Null** is returned.
Conv This numeric value indicates the type of conversion. See conversion table below.

Conv	Value	Effect
vbUpperCase	1	Convert to upper case.
vbLowerCase	2	Convert to lower case.
vbProperCase	3	Convert to proper case. (Not supported.)
vbWide	4	Convert to wide. (Only supported for Win32 in eastern locales.)
vbNarrow	8	Convert to narrow. (Only supported for Win32 in eastern locales.)
vbKatakana	16	Convert to Katakana. (Only supported for Win32 in Japanese locales.)
vbHiragana	32	Convert to Hiragana. (Only supported for Win32 in Japanese locales.)
vbUnicode	64	Convert to Unicode. (Only supported for Win32.)
vbFromUnicode	128	Convert from Unicode. (Only supported for Win32.)

See Also **LCase\$(), StrComp(), UCase\$().**

Example **Sub** Main

```
Dim B(1 To 3) As Byte
B(1) = 65
B(2) = 66
B(3) = 67
Debug.Print StrConv$(B,vbUnicode) '"ABC"
```

End Sub

String Data Type

Group Data Type

Description An arbitrary length string value. Some useful string constants are predefined:

- vbNullChar - same as Chr(0)
- vbCrLf - same as Chr(13) & Chr(10)
- vbCr - same as Chr(13)
- vbLf - same as Chr(10)
- vbBack - same as Chr(8)
- vbFormFeed - same as Chr(12)
- vbTab - same as Chr(9)
- vbVerticalTab - same as Chr(11)

String*n Data Type

Group Data Type

Description A fixed length (n) string value.

String\$ Function

Syntax String[\$](Len, Char|\$)

Group String

Description Return the string *Len* long filled with *Char* or the first char of *Char\$*.

Parameter	Description
-----------	-------------

Len Create a string this many chars long.

Char|\$ Fill the string with this char value. If this is a numeric value then use the ASCII char equivalent. If this is a string value use the first char of that string. If this value is **Null** then **Null** is returned.

See Also **Space\$().**

```

Example      Sub Main
    Debug.Print String$(4,65)      "AAAA"
    Debug.Print String$(4,"ABC")   "AAAA"
End Sub

```

StrReverse\$ Function

Syntax StrReverse[\$] (S)

Group String

Description Return the string with the characters in reverse order.

Parameter	Description
-----------	-------------

S	Return this string with the characters in reverse order.
---	--

```

Example      Sub Main
    Debug.Print StrReverse$("ABC") 'CBA
End Sub

```

Sub Definition

Syntax [| **Private** | **Public** | **Friend**] _

Sub *name* [([*param* [, ...])]]
 statements

End Sub

Group Declaration

Description User defined subroutine. The subroutine defines a set of *statements* to be executed when it is called. The values of the calling *arglist* are assigned to the *params*. A subroutine does not return a result.

Sub defaults to **Public** if **Private**, **Public** or **Friend** are not is specified.

See Also **Declare, Function, Property.**

```

Example      Sub IdentityArray(A()) ' A() is an array of numbers
    For I = LBound(A) To UBound(A)
        A(I) = I
    Next I
End Sub

```

```

Sub CalcArray(A(),B,C) ' A() is an array of numbers
    For I = LBound(A) To UBound(A)
        A(I) = A(I)*B+C
    Next I
End Sub

```

```

Sub ShowArray(A()) ' A() is an array of numbers
    For I = LBound(A) To UBound(A)
        Debug.Print "(";I;"")=";A(I)
    Next I
End Sub

```

```

Sub Main
    Dim X(1 To 4)
    IdentityArray X ' X(1)=1, X(2)=2, X(3)=3, X(4)=4

```



```
CalcArray X(),2,3 ' X(1)=5, X(2)=7, X(3)=9, X(4)=11
ShowArray X()      ' print X(1), X(2), X(3), X(4)
```

```
End Sub
```

Tan Function

Syntax `Tan (Num)`

Group Math

Description Return the tangent.

Parameter	Description
-----------	-------------

<i>Num</i>	Return the tangent of this numeric value.
------------	---

Example

```
Sub Main
    Debug.Print Tan(1) ' 1.5574077246549
End Sub
```

Text Dialog Item Definition

Syntax `Text X, Y, DX, DY, Title$[, .Field]`

Group User Dialog

Description Define a text item.

Parameter	Description
-----------	-------------

<i>X</i>	This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.
----------	---

<i>Y</i>	This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.
----------	--

<i>DX</i>	This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.
-----------	---

<i>DY</i>	This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.
-----------	--

<i>Title\$</i>	The value of this string is the title of the text control.
----------------	--

<i>Field</i>	This identifier is the name of the field. The <i>dialogfunc</i> receives this name as <i>string</i> . If this identifier is omitted then the first two words of the title are used.
--------------	---

See Also [Begin Dialog](#), [Dim As UserDialog](#).

Example

```
Sub Main
    Begin Dialog UserDialog 200,120
        Text 10,10,180,15,"Please push the OK button"
        OKButton 80,90,40,20
    End Dialog
    Dim dlg As UserDialog
    Dialog dlg ' show dialog (wait for ok)
End Sub
```

TextBox Dialog Item Definition

Syntax `TextBox X, Y, DX, DY, .Field$[, Options]`

Group User Dialog

Description Define a textbox item.

Parameter	Description
-----------	-------------

<i>X</i>	This number value is the distance from the left edge of the dialog box. It is measured in 1/8 ths of the average character width for the dialog's font.
----------	---

<i>Y</i>	This number value is the distance from the top edge of the dialog box. It is measured in 1/12 ths of the character height for the dialog's font.
----------	--

DX This number value is the width. It is measured in 1/8 ths of the average character width for the dialog's font.

DY This number value is the height. It is measured in 1/12 ths of the character height for the dialog's font.

Field The value of the text box is accessed via this field.

Options This numeric value controls the type of text box. Choose one value from following table. (If this numeric value omitted then zero is used.)

Option	Description
0	Text box allows a single line of text to be entered.
1	Text box allows multiple lines of text can be entered.
-1	Text box allows a hidden password can be entered.

See Also **Begin Dialog, Dim As UserDialog.**

Example

```

Sub Main
    Begin Dialog UserDialog 200,120
        Text 10,10,180,15,"Please push the OK button"
        TextBox 10,25,180,20,.Text$
        OKButton 80,90,40,20
    End Dialog
    Dim dlg As UserDialog
    dlg.Text$ = "none"
    Dialog dlg ' show dialog (wait for ok)
    Debug.Print dlg.Text$
End Sub

```

Time Function

Syntax Time[\$]

Group Time/Date

Description Return the current time as a **date** value.

See Also **Date, Now, Timer.**

Example

```

Sub Main
    Debug.Print Time ' example: 09:45:00 am
End Sub

```

Timer Function

Syntax Timer

Group Time/Date

Description Return the number of seconds past midnight. (This is a real number, accurate to about 1/18th of a second.)

See Also **Date, Now, Time.**

Example

```

Sub Main
    Debug.Print Timer ' example: 45188.13
End Sub

```

TimeSerial Function

Syntax TimeSerial(*Hour, Minute, Second*)

Group Time/Date

Description Return a **date** value.

Parameter	Description
<i>Hour</i>	This numeric value is the hour (0 to 23).

Minute This numeric value is the minute (0 to 59).

Second This numeric value is the second (0 to 59).

See Also [DateSerial](#), [DateValue](#), [TimeValue](#).

Example `Sub Main`

```
Debug.Print TimeSerial(13,30,0) '1:30:00 PM
```

`End Sub`

TimeValue Function

Syntax `TimeValue (Date$)`

Group Time/Date

Description Return the time part of date encoded as a string value.

Parameter	Description
-----------	-------------

<i>Date\$</i>	Convert this string value to the time part of date it represents.
---------------	---

See Also [DateSerial](#), [DateValue](#), [TimeSerial](#).

Example `Sub Main`

```
Debug.Print TimeValue("1/1/2000 12:00:01 AM")
'12:00:01 AM
```

`End Sub`

Trim\$ Function

Syntax `Trim[$] (S$)`

Group String

Description Return the string with *S\$*'s leading and trailing spaces removed.

Parameter	Description
-----------	-------------

<i>S\$</i>	Copy this string without the leading or trailing spaces. If this value is Null then Null is returned.
------------	---

See Also [LTrim\\$\(\)](#), [RTrim\\$\(\)](#).

Example `Sub Main`

```
Debug.Print ". "; Trim$(" x "); ". " & ".x."
```

`End Sub`

True Keyword

Group Constant

Description A *conditional expression* is **True** when its value is non-zero. A function that returns **True** returns the value -1.

Type Definition

Syntax `[| Private | Public] _`

Type *name*

```
elem [([dim[, ...]])] As [New] type
```

```
[...]
```

`End Type`

Group Declaration

Description Define a new *usertype*. Each *elem* defines an element of the type for storing data. *As [New] type* defines the type of data that can be stored. A *user defined type variable* has a value for each *elem*. Use *.elem* to access individual element values.

Type defaults to **Public** if neither **Private** or **Public** is specified.

```
Example      Type Employee
               FirstName As String
               LastName As String
               Title As String
               Salary As Double
End Type

Sub Main
    Dim e As Employee
    e.FirstName = "John"
    e.LastName = "Doe"
    e.Title = "President"
    e.Salary = 100000
    Debug.Print e.FirstName "John"
    Debug.Print e.LastName "Doe"
    Debug.Print e.Title "President"
    Debug.Print e.Salary "100000"
End Sub
```

TypeName Function

Syntax TypeName[\$] (var)

Group Variable Info

Description Return a string indicating the type of value stored in var.

Parameter	Description
var	Return a string indicating the type of value stored in this variable.
Result	Description
Empty	<i>Variant</i> variable is empty. It has never been assigned a value.
Null	<i>Variant</i> variable is null.
Integer	Variable contains an integer value.
Long	Variable contains a long value.
Single	Variable contains a single value.
Double	Variable contains a double value.
Currency	Variable contains a currency value.
Date	Variable contains a date value.
String	Variable contains a string value.
Object	Variable contains an object reference that is not Nothing. (An object may return a type name specific to that type of object.)
Nothing	Variable contains an object reference that is Nothing.
Error	Variable contains a error code value.
Boolean	Variable contains a boolean value.
Variant	Variable contains a variant value. (Only used for arrays of variants.)
Unknown	Variable contains a non-ActiveX Automation object reference.
Byte	Variable contains a byte value.
()	Variable contains an array value. The TypeName of the element followed by ().

See Also VarType.

```
Example      Sub Main
               Dim X As Variant
               Debug.Print TypeName(X) "Empty"
               X = 1
End Sub
```

```

Debug.Print TypeName(X) '"Integer"
X = 100000
Debug.Print TypeName(X) '"Long"
X = 1.1
Debug.Print TypeName(X) '"Double"
X = "A"
Debug.Print TypeName(X) '"String"
Set X = CreateObject("Word.Basic")
Debug.Print TypeName(X) '"Object"
X = Array(0,1,2)
Debug.Print TypeName(X) '"Variant()"

```

End Sub

UBound Function

Syntax UBound(*arrayvar*[, *dimension*])

Group Variable Info

Description Return the highest index.

Parameter	Description
-----------	-------------

arrayvar Return the highest index for this array variable.

dimension Return the highest index for this dimension of *arrayvar*. If this is omitted then return the highest index for the first dimension.

See Also LBound().

Example Sub Main

```

Dim A(3,6)
Debug.Print UBound(A) ' 3
Debug.Print UBound(A,1) ' 3
Debug.Print UBound(A,2) ' 6

```

End Sub

UCase\$ Function

Syntax UCase[\$] (S\$)

Group String

Description Return a string from S\$ where all the lowercase letters have been uppercased.

Parameter	Description
-----------	-------------

S\$ Return the string value of this after all chars have been converted to lowercase. If this value is Null then Null is returned.

See Also LCase\$(), StrComp(), StrConv\$().

Example Sub Main

```

Debug.Print UCase$("Hello") '"HELLO"

```

End Sub

Unlock Instruction

Syntax Unlock *StreamNum*

-or-

Unlock *StreamNum*, *RecordNum*

-or-

Unlock *StreamNum*, [*start*] To *end*

Group File

Description Form 1: Unlock all of *StreamNum*.

Form 2: Unlock a record (or byte) of *StreamNum*.

Form 3: Unlock a range of records (or bytes) of *StreamNum*. If *start* is omitted then unlock starting at the first record (or byte).

Note: For sequential files (Input, Output and Append) unlock always affects the entire file.

Parameter	Description
<i>StreamNum</i>	Streams 1 through 255 are private to each macro. Streams 256 through 511 are shared by all macros.
<i>RecordNum</i>	For Random mode files this is the record number. The first record is 1. Otherwise, it is the byte position. The first byte is 1.
<i>start</i>	First record (or byte) in the range.
<i>end</i>	Last record (or byte) in the range.

See Also Lock, Open.

Example

```

Sub Main
  Dim V As Variant
  Open "SAVE_V.DAT" For Binary As #1
  Lock #1
  Get #1, 1, V
  V = "Hello"
  Put #1, 1, V
  Unlock #1
  Close #1
End Sub

```

UserDialog Data Type

Group Data Type

Description A *usertype* defined by **Begin Dialog** UserDialog.

Uses Comment

Syntax '#Uses "*module*" [Only: [Win16|Win32]] ...

-or-

'\$Include: "*module*"

Description The Uses comment indicates that the current *macro/module* uses public and friend symbols from the *module*. The Only option indicates that the module is only loaded for that Windows platform.

Parameter	Description
<i>module</i>	Public and Friend symbols from this module are accessible. If the module name is a relative path then the path is relative to the macro/module containing the Uses comment. For example, if module "A:\B\C\D.BAS" has this uses comment: #Uses "E.BAS" then it uses "A:\B\C\E.BAS".

See Also Class Module, Code Module, Object Module.

Example

```

'Macro A.WWB
'#Uses "B.WWB"
Sub Main

```

```

    Debug.Print BFunc$("Hello") '"HELLO"
End Sub

```

```

'Module B.WWB
Public Function BFunc$(S$)
    BFunc$ = UCase(S$)
End Sub

```

Val Function

Syntax Val (S\$)

Group String

Description Return the value of the S\$.

Parameter	Description
-----------	-------------

S\$ Return the numeric value for this string value. A string value begins with &O is an octal number. A string value begins with &H is a hex number. Otherwise it is decimal number.

Example

```

Sub Main
    Debug.Print Val("-1000") '-1000
End Sub

```

Variant Data Type

Group Data Type

Description An empty, numeric, currency, date, string, object, error code, null or array value.

VarType Function

Syntax VarType (var)

Group Variable Info

Description Return a number indicating the type of value stored in var.

Parameter	Description
-----------	-------------

var	Return a number indicating the type of value stored in this variable.
-----	---

Result	Value	Description
--------	-------	-------------

vbEmpty	0	Variant variable is empty. It has never been assigned a value.
vbNull	1	Variant variable is null.
vbInteger	2	Variable contains an integer value.
vbLong	3	Variable contains a long value.
vbSingle	4	Variable contains a single value.
vbDouble	5	Variable contains a double value.
vbCurrency	6	Variable contains a currency value.
vbDate	7	Variable contains a date value.
vbString	8	Variable contains a string value.
vbObject	9	Variable contains an object reference.
vbError	10	Variable contains a error code value.
vbBoolean	11	Variable contains a boolean value.
vbVariant	12	Variable contains a variant value. (Only used for arrays of variants.)
vbDataObject	13	Variable contains a non-ActiveX Automation object reference.
vbDecimal	14	Variable contains a 96 bit scaled real.
vbByte	17	Variable contains a byte value.
vbUserDefinedType	36	Variable contains a User Defined Type value.
+vbArray	8192	Variable contains an array value. Use VarType() And 255 to get the type of element stored in the array.

See Also **TypeName.****Example** **Sub Main**

```

Dim X As Variant
Debug.Print VarType(X) ' 0
X = 1
Debug.Print VarType(X) ' 2
X = 100000
Debug.Print VarType(X) ' 3
X = 1.1
Debug.Print VarType(X) ' 5
X = "A"
Debug.Print VarType(X) ' 8
Set X = CreateObject("Word.Basic")
Debug.Print VarType(X) ' 9
X = Array(0,1,2)
Debug.Print VarType(X) ' 8204 (8192+12)

```

End Sub

Wait Instruction

Syntax *Wait Delay*

Group Miscellaneous

Description Wait for *Delay* seconds.

Example **Sub Main**

```

Wait 5 ' wait for 5 seconds

```

End Sub

Weekday Function

Syntax *Weekday(dateexpr)*

Group Time/Date

Description Return the weekday.

- vbSunday (1) - Sunday
- vbMonday (2) - Monday
- vbTuesday (3) - Tuesday
- vbWednesday (4) - Wednesday
- vbThursday (5) - Thursday
- vbFriday (6) - Friday
- vbSaturday (7) - Saturday

Parameter	Description
-----------	-------------

dateexpr Return the weekday for this date value. If this value is **Null** then **Null** is returned.

See Also **Date(), Day(), Month(), WeekdayName(), Year().**

Example **Sub Main**

```

Debug.Print Weekday(#1/1/1900#) ' 2
Debug.Print Weekday(#1/1/2000#) ' 7

```

End Sub

WeekdayName Function

Syntax *WeekdayName(NumZ{day}[, CondZ{abbrev}])*

Group Time/Date**Description** Return the localized name of the weekday.**Parameter** **Description***day* Return the localized name of this weekday. (1-7)*abbrev* If this conditional value is **True** then return the abbreviated form of the weekday name.**See Also** **Weekday()**.**Example** **Sub** Main **Debug.Print** WeekdayName(1) 'Sunday **Debug.Print** WeekdayName(**Weekday**(**Now**))**End Sub**

While Statement

Syntax *While condexpr*
 *statements***Wend****Group** Flow Control**Description** Execute *statements* while *condexpr* is **True**.**See Also** **Do, For, For Each, Exit While.****Example** **Sub** Main

I = 2

While I < 10

I = I*2

Wend

Debug.Print I ' 16**End Sub**

Win16 Keyword

Group Constant**Description** **True** if running in 16 bits. **False** if running in 32 bits.

Win32 Keyword

Group Constant**Description** **True** if running in 32 bits. **False** if running in 16 bits.

With Statement

Syntax *With objexpr*
 *statements***End With****Group** Object**Description** *Method* and *property* references may be abbreviated inside a With block. Use *.method* or *.property* to access the object specified by the With *objexpr*.**Example** **Sub** Main **Dim** App As **Object** **Set** App = **CreateObject**("WinWrap.CppDemoApplication")

With App

.Move 20,30 ' move icon to 20,30

```

    End With
End Sub

```

WithEvents Definition

Syntax `[Dim | Private | Public] _
WithEvents name As objtype[, ...]`

Group Declaration

Description Dimensioning a module level variable WithEvents allows the macro to implement event handling **Subs**. The variable's As type must be a type from a referenced type library (or language extension) which implements events.

Remarks This keyword is supported by the single DLL IDE/interpreter (aka the Enterprise edition). It is not supported by the interpreter implemented in WW_CU516.DLL or WW_CU532.DLL.

See Also **Dim, Private, Public.**

Example `Dim WithEvents X As Thing`

```

Sub Main
    Set X = New Thing
    X.DoIt ' DoIt method raises DoingIt event
End Sub

```

```

Private Sub X_DoingIt
    Debug.Print "X.DoingIt event"
End Sub

```

Write Instruction

Syntax `Write #StreamNum, expr[, ...]`

Group File

Description Write's *expr*(s) to *StreamNum*. String values are quoted. Null values are written as #NULL#. Boolean values are written as #FALSE# or #TRUE#. Date values are written as #date#. Error codes are written as #ERROR number#.

See Also **Input, Line Input, Print.**

Example `Sub Main`

```

    A = 1
    B = 2
    C$ = "Hello"
    Open "XXX" For Output As #1
    Write #1,A,B,C$
    Close #1
End Sub

```

Year Function

Syntax `Year(dateexpr)`

Group Time/Date

Description Return the year.

Parameter	Description
-----------	-------------

dateexpr Return the year for this date value. If this value is **Null** then **Null** is returned.

See Also **Date(), Day(), Month(), Weekday().**

Example **Sub** Main
 Debug.Print Year(#1/1/1900#) ' 1900
 Debug.Print Year(#1/1/2000#) ' 2000
End Sub

Objects Overview

ActiveX Automation provides access to objects in other applications. Each object supports a particular set of *methods* and *properties*. Each method/property has zero or more parameters. Parameters may be optional, in which case the parameter can be specified by using name := value.

- *objexpr.method* [*expr*][, ...] [*param* := *expr*][,...]
Call *method* for *objexpr*.
- *objexpr.method*[(*expr*)[, ...] [*param* := *expr*][,...])
Return the value of *method* for *objexpr*.
- *objexpr.property*[(*expr*)[, ...] [*param* := *expr*][,...])
Return the value of *property* for *objexpr*.
- *objexpr*[(*expr*)[, ...] [*param* := *expr*][,...])
Return the default value for the *objexpr*.
- *objexpr.property*[(*expr*)[, ...]] = *expr*
Assign the value of *property* for *objexpr*.
- *objexpr*[(*expr*)[, ...]] = *expr*
Assign the default value for the *objexpr*.
- Set *objexpr.property*[(*expr*)[, ...]] = *objexpr*
Set the object reference of *property* for *objexpr*.

Note: *objexpr!name* is short hand for *objexpr.defaultproperty("name")*. Use *objexpr![name]* if name contains any characters that are not allowed in an identifier.

Error List

The following table lists all error codes with the associated error text.

Error	Description
10000	Execution interrupted.
10001	Out of memory.
10008	Invalid #Uses "module" comment.
10009	Invalid #Uses module dependency.
10010	Macro is already running.
10011	Can't allocate memory to macro/module.
10012	Macro/module has syntax errors.
10013	Macro/module does not exist.
10014	Another macro is paused and can't continue at this time.
10017	No macro is currently active.
10018	Sub/Function does not exist.
10019	Wrong number of parameters.
10021	Can't allocate large array.
10022	Array is not dimensioned.
10023	Array index out of range.
10024	Array lower bound is larger than upper bound.
10025	Array has a different number of indexes.
10030	User dialog has not been defined.
10031	User pressed cancel.
10032	User dialog item id is out of range.
10033	No UserDialog is currently displayed.
10034	Current UserDialog is inaccessible.
10035	Wrong with, don't GoTo into or out of With blocks.
10040	Module could not be loaded.
10041	Function not found in module.
10048	File not opened with read access.
10049	File not opened with write access.
10050	Record length exceeded.
10051	Could not open file.
10052	File is not open.
10053	Attempt to read past end-of-file.
10054	Expecting a stream number in the range 1 to 511.
10055	Input does not match var type.
10056	Expecting a length in the range 1 to 32767.
10057	Stream number is already open.
10058	File opened in the wrong mode for this operation.
10059	Error occurred during file operation.
10060	Expression has an invalid floating point operation.
10061	Divide by zero.
10062	Overflow.
10063	Expression underflowed minimum representation.
10064	Expression loss of precision in representation.
10069	String value is not a valid number.
10071	Resume can only be used in an On Error handler.
10075	Null value can't be used here.
10080	Type mismatch.
10081	Type mismatch for parameter #1.
10082	Type mismatch for parameter #2.
10083	Type mismatch for parameter #3.
10084	Type mismatch for parameter #4.
10085	Type mismatch for parameter #5.
10086	Type mismatch for parameter #6.
10087	Type mismatch for parameter #7.
10088	Type mismatch for parameter #8.
10089	Type mismatch for parameter #9.
10090	OLE Automation error.
10091	OLE Automation: no such property or method.

Error List

10092	OLE Automation: server cannot create object.
10093	OLE Automation: server cannot load file.
10094	OLE Automation: Object var is 'Nothing'.
10095	OLE Automation: server could not be found.
10096	OLE Automation: no object currently active.
10097	OLE Automation: wrong number of parameters.
10098	OLE Automation: bad index.
10099	OLE Automation: no such named parameter.
10100	Directory could not be found.
10101	File could not be killed.
10102	Directory could not be created.
10103	File could not be renamed.
10104	Directory could not be removed.
10105	Drive not found.
10106	Source file could not be opened.
10107	Destination file could not be created.
10108	Source file could not be completely read.
10109	Destination file could not be completely written.
10110	Missing close brace '}'.
10111	Invalid key name.
10112	Missing close paren ')'
10113	Missing close bracket ']'.
10114	Missing comma ','.
10115	Missing semi-colon ';'.
10116	SendKeys couldn't install the Windows journal playback hook.
10119	String too long (too many keys).
10120	Window could not be found.
10130	DDE is not available.
10131	Too many simultaneous DDE conversations.
10132	Invalid channel number.
10133	DDE operation did not complete in time.
10134	DDE server died.
10135	DDE operation failed.
10140	Can't access the clipboard.
10150	Window style must be in the range from 1 to 9.
10151	Shell failed.
10160	Declare is not implemented.
10200	Basic is halted due to an unrecoverable error condition.
10201	Basic is busy and can't provide the requested service.
10202	Basic call failed.
10203	Handler property: prototype specification is invalid.
10204	Handler is already in use.

Terms

arglist [| *expr* | *param:=expr*][, ...]

A list of zero or more *exprs* that are assigned to the parameters of the *procedure*.

- A positional parameter may be skipped by omitting the expression. Only optional parameters may be skipped.
- Positional parameter assignment is done with *expr*. Each parameter is assigned in turn. By name parameter assignment may follow.
- By name parameter assignment is done with *param:=expr*. All following parameters must be assigned by name.

arrayvar A variable that holds an array of values. A *Variant* variable can hold an array. Dynamic arrays can be **ReDimensioned**.

As [New] type Dim, Private, Public and Static statements may declare variable types using *As type* or *As New objtype*. A variable declared using *As New objtype* is automatically created prior to use, if the variable is **Nothing**.

As type Variable and parameter types, as well as, function and property results may be specified using *As type*: **Boolean, Byte, Currency, Date, Double, Integer, Long, Object, PortInt, Single, String, String*n, UserDialog, Variant, objtype, userenum, usertype**.

attribute A file attribute is zero or more of the following values added together.

Attribute Value	Description
vbNormal	0 Normal file.
vbReadOnly	1 Read-only file.
vbHidden	2 Hidden file.
vbSystem	4 System file.
vbVolume	8 Volume label.
vbDirectory	16 MS-DOS directory.
vbArchive	32 File has changes since last backup.

big-endian Multiple byte data values (not strings) are stored with the highest order byte first. For example, the long integer &H01020304 is stored as this sequence of four bytes: &H01, &H02, &H03 and &H04. A Binary or Random file written using **Put** uses *little-endian* format so that it can be read using **Get** on any machine. (Big-endian machines, like the Power-PC, reverse the bytes as they are read by **Get** or written by **Put**.)

charlist A group of one or more characters enclosed by [] as part of **Like** operator's right string expression.

- This list contains single characters and/or character ranges which describe the characters in the list.
- A range of characters is indicated with a hyphen (-) between two characters. The first character must be ordinally less than or equal to the second character.
- Special pattern characters like ?, *, # and [can be matched as literal characters.
- The] character can not be part of charlist, but it can be part of the pattern outside the charlist.

condexpr An expression that returns a numeric result. If the result is zero then the conditional is **False**. If the result is non-zero then the conditional is **True**.

```
0 'false
-1 'true
X > 20 'true if X is greater than 20
S$ = "hello" 'true if S$ equals "hello"
```

dateexpr An expression that returns a **date** result. Use *#literal-date#* to express a date value.

```
#1/1/2000# ' Jan 1, 2000
```

```
Now+7 ' seven days from now
```

```
DateSerial (Year (Now)+1, Month (Now) , Day (Now) )
' one year from now
```

dialogfunc A dialog function executes while a **UserDialog** is visible.

dim [*lower* To] *upper*

Array dimension. If *lower* is omitted then the lower bound is zero or one depending on the **Option** Base setting. (The lower bound of an array element in a **Type** definition is not affected by the Option Base setting.) *upper* must be at least as big as *lower*.

```
Dim A(100 To 200) '101 values
```

Note: For **ReDim** the *lower* and *upper* may be any valid *expression*. Otherwise, *lower* and *upper* must be constant expressions.

dlgvar A dialog variable holds values for fields in the dialog. Dialog variables are declared using **Dim** *dlgvar* As **UserDialog**.

expr An expression that returns the appropriate result.

field Use .*field* to access individual fields in a dialog variable.

```
dlg.Name$
```

```
dlg.ZipCode
```

instruction A single command.

```
Beep
```

```
Debug.Print "Hello"
```

```
Today = Date
```

Multiple instructions may be used instead of a single instruction by separating the single instructions with colons.

```
X = 1:Debug.Print X
```

```
If X = 1 Then Debug.Print "X=";X:Stop
```

```
Beep ' must resume from Stop to get to here
```

label An identifier that *names* a statement. Identifiers start with a letter. Following chars may be a letter, an underscore or a digit.

little-endian Multiple byte data values (not strings) are stored with the lowest order byte first. For example, the long integer &H01020304 is stored as this sequence of four bytes: &H04, &H03, &H02 and &H01. A Binary or Random file written using **Put** uses little-endian format so that it can be read using **Get** on any machine. (*Big-endian* machines, like the Power-PC, reverse the bytes as they are read by **Get** or written by **Put**.)

macro A macro is like an application. Execution starts at the macro's Sub **Main**.

method An object provides methods and *properties*. Methods can be called as subs (the return value is ignored), or used as functions (the return value is used).

If the method name contains characters that are not legal in a *name*, surround the method name with [].

```
App.[Title$]
```


module A file with **public** symbols that are accessible by other modules/*macros* via the **#Uses** comment.

- A module is loaded on demand.
- A **code module** is a code library.
- An **object module** or **class module** implements an ActiveX Automation object.
- A module may also access other modules with its own **#Uses** comments.

name An identifier that names a variable or a user defined *procedure*. Identifiers start with a letter. Following chars may be a letter, an underscore or a digit.

Count

DaysTill12000

Get_Data

num An expression that returns a numeric result. Use &O to express an octal number. Use &H to express a hex number.

numvar A variable that holds one numeric value. The name of a numeric variable may be followed by the appropriate *type* char.

objexpr A expression that returns a reference to an object or *module*.

CreateObject("WinWrap.CDemoApplication")

objtype A specific ActiveX Automation type defined by your application, another application or by an **object module** or **class module**.

objvar A variable that holds a *objexpr* which references an object. Object variables are declared using As *Object* in a **Dim**, **Private** or **Public** statement.

param [[Optional] [| ByVal | ByRef] | ParamArray] *param[type][()] [As type] [= defaultvalue]*

The *param* receives the value of the associated expression in the **Declare**, **Sub**, **Function** or **Property** call. (See *arglist*.)

- An Optional *param* may be omitted from the call. It may also have a *defaultvalue*.

The parameter receives the defaultvalue if a value is not specified by the call. If the defaultvalue is omitted, the parameter is a **Variant** and no value is specified in the call then **IsMissing** will return **True**.

- All parameters following an Optional parameter must also be Optional.
- ParamArray may be used on the final *param*. It must be an array of **Variant** type. It must not follow any Optional parameters. The ParamArray receives all the expressions at the end of the call as an array. If **LBound(param) > UBound(param)** then the ParamArray didn't receive any expressions.

- If the *param* is not ByVal and the expression is merely a variable then the *param* is a reference to that variable (ByRef). (Changing *param* changes the variable.) Otherwise, the parameter variable is local to the *procedure*, so changing its value does not affect the caller.

- Use *param()* to specify an array parameter. An array parameter must be referenced and can not be passed by value. The bounds of the parameter array are available via **LBound()** and **UBound()**.

precedence When several operators are used in an expression, each operator is evaluated in a predetermined order. Operators are evaluated in this order:

- ^ (power)
- - (negate)
- * (multiply), / (divide)
- \ (integer divide)
- Mod (integer remainder)
- + (add), - (difference)
- & (string concatenate)
- = (equal), <> (not equal), < (less than) > (greater than), <= (less than or equal to), >= (greater than or equal to), **Like**, (string similarity) **Is** (object equivalence)
- Not (logical bitwise invert)
- And (logical bitwise and)
- Or (logical or bitwise or)
- Xor (logical or bitwise exclusive-or)
- Eqv (logical or bitwise equivalence)
- Imp (logical or bitwise implication)

Operators shown on the same line are evaluated from left to right.

procedure A subroutine, **function** or **property**.

property An object provides *methods* and properties. Properties may be used as values (like a function call) or changed (using assignment syntax).

If the property name contains characters that are not legal in a *name*, surround the property name with [].

```
App.[Title$]
```

statement Zero or more *instructions*. A statement is at least one line long. **Begin**

Dialog, **Do**, **For**, **If** (multiline), **Select Case**, **While** and **With** statements are always more than one line long. A single line statement continues on the next line if it ends a line with a space and an underscore '_ '.

```
S$ = "This long string is easier to read, " + _
    "if it is broken across two lines."
```

```
Debug.Print S$
```

str An expression that returns a string result.

```
"Hello"
```

```
S$
```

```
S$ + " Goodbye"
```

```
S$ & " Goodbye"
```

```
Mid$(S$,2)
```

strarray A variable that holds an array of string values. The name of a string variable may be followed by a \$.

strvar A variable that holds one string value. The name of a string variable may be followed by a \$.

```
FirstName$
```

type Variable and parameter types, as well as, function and property results may be specified using a type character as the last character in their name.

Type char	As Type
------------------	----------------

%	Integer
?	PortInt
&	Long
!	Single
#	Double
@	Currency
\$	String

userenum User defined enums are defined with **Enum**.

usertype User defined types are defined with **Type**.

usertypevar A user defined type variable holds values for elements of the user defined type. User defined types are defined using **Type**.

- Declare with **Dim**, **Private**, **Public** or **Static**.
- Declare as a parameter of **Sub**, **Function** or **Property** definition.

var A variable holds either a string, a numeric value or an array of values depending on its type.

variantvar A variant variable can hold any type of value (except **String*n** or *usertypevar*). or it can hold an array.