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You can control the flow of your script with conditional statements and looping statements. Using conditional statements, you can write VBScript code that makes decisions and repeats actions. The following conditional statements are available in VBScript:

- **If...Then...Else** statement
- **Select Case** statement

### Making Decisions Using If...Then...Else

The **If...Then...Else** statement is used to evaluate whether a condition is **True** or **False** and, depending on the result, to specify one or more statements to run. Usually the condition is an expression that uses a comparison operator to compare one value or variable with another. For information about comparison operators, see [Comparison Operators](#). **If...Then...Else** statements can be nested to as many levels as you need.

#### Running Statements if a Condition is True

To run only one statement when a condition is **True**, use the single-line syntax for the **If...Then...Else** statement. The following example shows the single-line syntax. Notice that this example omits the **Else** keyword.

```
Sub FixDate()
```
Dim myDate
myDate = #2/13/95#
If myDate < Now Then myDate = Now
End Sub

To run more than one line of code, you must use the multiple-line (or block) syntax. This syntax includes the End If statement, as shown in the following example:

Sub AlertUser(value)
    If value = 0 Then
        AlertLabel.ForeColor = vbRed
        AlertLabel.Font.Bold = True
        AlertLabel.Font.Italic = True
    End If
End Sub

Running Certain Statements if a Condition is True and Running Others if a Condition is False

You can use an If...Then...Else statement to define two blocks of executable statements: one block to run if the condition is True, the other block to run if the condition is False.

Sub AlertUser(value)
    If value = 0 Then
        AlertLabel.ForeColor = vbRed
        AlertLabel.Font.Bold = True
        AlertLabel.Font.Italic = True
Else
    AlertLabel.Forecolor = vbBlack
    AlertLabel.Font.Bold = False
    AlertLabel.Font.Italic = False
End If
End Sub

Deciding Between Several Alternatives

A variation on the If...Then...Else statement allows you to choose from several alternatives. Adding ElseIf clauses expands the functionality of the If...Then...Else statement so you can control program flow based on different possibilities. For example:

Sub ReportValue(value)
    If value = 0 Then
        MsgBox value
    ElseIf value = 1 Then
        MsgBox value
    ElseIf value = 2 Then
        MsgBox value
    Else
        MsgBox "Value out of range!"
    End If
End Sub

You can add as many ElseIf clauses as you need to provide alternative choices. Extensive use of the ElseIf clauses often becomes cumbersome. A better way to choose between several alternatives is the Select Case statement.
Making Decisions with Select Case

The **Select Case** structure provides an alternative to **If...Then...ElseIf** for selectively executing one block of statements from among multiple blocks of statements. A **Select Case** statement provides capability similar to the **If...Then...Else** statement, but it makes code more efficient and readable.

A **Select Case** structure works with a single test expression that is evaluated once, at the top of the structure. The result of the expression is then compared with the values for each **Case** in the structure. If there is a match, the block of statements associated with that **Case** is executed:

```vba
Select Case Document.Form1.CardType.Options(SelectedIndex).Text
  Case "MasterCard"
    DisplayMCLogo
    ValidateMCAccount
  Case "Visa"
    DisplayVisaLogo
    ValidateVisaAccount
  Case "American Express"
    DisplayAMEXLogo
    ValidateAMEXAccount
  Case Else
    DisplayUnknownImage
    PromptAgain
End Select
```

Notice that the **Select Case** structure evaluates an expression once at the top of the structure. In contrast, the **If...Then...ElseIf** structure can evaluate a different expression for each **ElseIf** statement. You can replace an
If...Then...ElseIf structure with a Select Case structure only if each ElseIf statement evaluates the same expression.
Using Loops to Repeat Code

Looping allows you to run a group of statements repeatedly. Some loops repeat statements until a condition is **False**; others repeat statements until a condition is **True**. There are also loops that repeat statements a specific number of times.

The following looping statements are available in VBScript:

- **Do...Loop**: Loops while or until a condition is **True**.
- **While...Wend**: Loops while a condition is **True**.
- **For...Next**: Uses a counter to run statements a specified number of times.
- **For Each...Next**: Repeats a group of statements for each item in a collection or each element of an array.

Using Do Loops

You can use **Do...Loop** statements to run a block of statements an indefinite number of times. The statements are repeated either while a condition is **True** or until a condition becomes **True**.

Repeating Statements While a Condition is True

Use the **While** keyword to check a condition in a **Do...Loop** statement. You can check the condition before you enter the loop (as shown in the following ChkFirstWhile example), or you can check it after the loop has run at least once (as shown in the ChkLastWhile example). In the ChkFirstWhile procedure, if `myNum` is set to 9 instead of 20, the statements inside the loop will never run. In the ChkLastWhile procedure, the
statements inside the loop run only once because the condition is already False.

Sub ChkFirstWhile()
    Dim counter, myNum
    counter = 0
    myNum = 20
    Do While myNum > 10
        myNum = myNum - 1
        counter = counter + 1
    Loop
    MsgBox "The loop made " & counter & " repetitions."
End Sub

Sub ChkLastWhile()
    Dim counter, myNum
    counter = 0
    myNum = 9
    Do
        myNum = myNum - 1
        counter = counter + 1
    Loop While myNum > 10
    MsgBox "The loop made " & counter & " repetitions."
End Sub

Repeating a Statement Until a Condition Becomes True

You can use the Until keyword in two ways to check a condition in a Do...Loop statement. You can check the condition before you enter the loop (as shown in the following ChkFirstUntil example), or you can check it after the loop has run at least once (as shown in the ChkLastUntil example). As long as the condition is False, the looping occurs.

Sub ChkFirstUntil()
    Dim counter, myNum
counter = 0
myNum = 20
Do Until myNum = 10
    myNum = myNum - 1
    counter = counter + 1
Loop
MsgBox "The loop made " & counter & " repetitions."
End Sub

Sub ChkLastUntil()
    Dim counter, myNum
    counter = 0
    myNum = 1
    Do
        myNum = myNum + 1
        counter = counter + 1
    Loop Until myNum = 10
    MsgBox "The loop made " & counter & " repetitions."
End Sub

Exiting a Do...Loop Statement from Inside the Loop

You can exit a Do...Loop by using the Exit Do statement. Because you usually want to exit only in certain situations, such as to avoid an endless loop, you should use the Exit Do statement in the True statement block of an If...Then...Else statement. If the condition is False, the loop runs as usual.

In the following example, myNum is assigned a value that creates an endless loop. The If...Then...Else statement checks for this condition, preventing the endless repetition.

    Sub ExitExample()
        Dim counter, myNum
        counter = 0
        myNum = 9
Do Until myNum = 10
    myNum = myNum - 1
    counter = counter + 1
    If myNum < 10 Then Exit Do
Loop
MsgBox "The loop made " & counter & " repetitions."
End Sub

Using While...Wend

The **While...Wend** statement is provided in VBScript for those who are familiar with its usage. However, because of the lack of flexibility in **While...Wend**, it is recommended that you use **Do...Loop** instead.

Using For...Next

You can use **For...Next** statements to run a block of statements a specific number of times. For loops, use a counter variable whose value is increased or decreased with each repetition of the loop.

For example, the following procedure causes a procedure called MyProc to execute 50 times. The **For** statement specifies the counter variable x and its start and end values. The **Next** statement increments the counter variable by 1.

```
Sub DoMyProc50Times()
    Dim x
    For x = 1 To 50
        MyProc
    Next
End Sub
```

Using the **Step** keyword, you can increase or decrease the counter variable by the value you specify. In the following example, the counter variable j is incremented by 2 each time the loop repeats. When the loop is finished, total is the sum of 2, 4, 6, 8, and 10.

```
Sub TwosTotal()
```
Dim j, total
For j = 2 To 10 Step 2
    total = total + j
Next
MsgBox "The total is " & total
End Sub

To decrease the counter variable, you use a negative Step value. You must specify an end value that is less than the start value. In the following example, the counter variable myNum is decreased by 2 each time the loop repeats. When the loop is finished, total is the sum of 16, 14, 12, 10, 8, 6, 4, and 2.

Sub NewTotal()
    Dim myNum, total
    For myNum = 16 To 2 Step -2
        total = total + myNum
    Next
    MsgBox "The total is " & total
End Sub

You can exit any For...Next statement before the counter reaches its end value by using the Exit For statement. Because you usually want to exit only in certain situations, such as when an error occurs, you should use the Exit For statement in the True statement block of an If...Then...Else statement. If the condition is False, the loop runs as usual.

Using For Each...Next

A For Each...Next loop is similar to a For...Next loop. Instead of repeating the statements a specified number of times, a For Each...Next loop repeats a group of statements for each item in a collection of objects or for each element of an array. This is especially helpful if you don't know how many elements are in a collection.

In the following HTML code example, the contents of a Dictionary object is used to place text in several text boxes:
Sub cmdChange_OnClick
    Dim d 'Create a variable
    Set d = CreateObject("Scripting.Dictionary")
    d.Add "0", "Athens" 'Add some keys and items
    d.Add "1", "Belgrade"
    d.Add "2", "Cairo"

    For Each I in d
        Document.frmForm.Elements(I).Value = D.Item(I)
    Next
End Sub

</SCRIPT>
</BODY>
</CENTER>
<FORM NAME="frmForm"

<Input Type = "Text"><p>
<Input Type = "Text"><p>
<Input Type = "Text"><p>
<Input Type = "Text"><p>
<Input Type = "Text"><p>
<Input Type = "Button" NAME="cmdChange" VALUE="Click H
</FORM>
</CENTER>
</BODY>
</HTML>
Simple Validation

You can use Visual Basic Scripting Edition to do much of the form processing that you'd usually have to do on a server. You can also do things that just can't be done on the server.

Here's an example of simple client-side validation. The HTML code is for a text box and a button. If you use Microsoft® Internet Explorer to view the page produced by the following code, you'll see a small text box with a button next to it.

```
<HTML>
<HEAD><TITLE>Simple Validation</TITLE></HEAD>
<SCRIPT LANGUAGE="VBScript">
<!--
Sub Button1_OnClick
  Dim TheForm
  Set TheForm = Document.ValidForm
  If IsNumeric(TheForm.Text1.Value) Then
    If TheForm.Text1.Value < 1 Or TheForm.Text1.Value > 10 Then
      MsgBox "Please enter a number between 1 and 10."
    Else
      MsgBox "Thank you."
    End If
  Else
  End If
</SCRIPT>
</HTML>
```
MsgBox "Please enter a numeric value."
End If
End Sub
-->
</SCRIPT>
</HEAD>
<BODY>
<H3>Simple Validation</H3>
<FORM NAME="ValidForm">
Enter a value between 1 and 10:
<INPUT NAME="Text1" TYPE="TEXT" SIZE="" <INPUT NAME="Button1" TYPE="BUTTON" VALUE="Submit">
</FORM>
</BODY>
</HTML>

The difference between this text box and the examples on A Simple VBScript Page is that the Value property of the text box is used to check the entered value. To get the Value property, the code has to qualify the reference to the name of the text box.

You can always write out the full reference Document.ValidForm.Text1. However, where you have multiple references to form controls, you'll want to do what was done here. First declare a variable. Then use the Set statement to assign the form to the variable TheForm. A regular assignment statement, such as Dim, doesn't work here; you must use Set to preserve the reference to an object.

Using Numeric Values

Notice that the example directly tests the value against a number: it uses the IsNumeric function to make sure the string in the text box is a number. Although VBScript automatically converts strings and numbers, it's always
a good practice to test a user-entered value for its data subtype and to use conversion functions as necessary. When doing addition with text box values, convert the values explicitly to numbers because the plus sign (+) operator represents both addition and string concatenation. For example, if Text1 contains "1" and Text2 contains "2", you see the following results:

\[
\begin{align*}
A &= \text{Text1.Value} + \text{Text2.Value} \quad \text{'} A \text{ is } \text{"12"} \\
A &= \text{CDbl(Text1.Value)} + \text{Text2.Value} \quad \text{'} A \text{ is } 3
\end{align*}
\]

Validating and Passing Data Back to the Server

The simple validation example uses a plain button control. If a Submit control was used, the example would never see the data to check it—everything would go immediately to the server. Avoiding the Submit control lets you check the data, but it doesn't submit the data to the server. That requires an additional line of code:

```vbscript
<SCRIPT LANGUAGE="VBScript">
<!--
Sub Button1_Click
 Dim TheForm
 Set TheForm = Document.ValidForm
 If IsNumeric(TheForm.Text1.Value) Then
  If TheForm.Text1.Value < 1 Or TheForm.Text1.Value > 10 Then
   MsgBox "Please enter a number between 1 and 10."
  Else
   MsgBox "Thank you."
  TheForm.Submit \quad \text{'} Data correct; send to server.
 End If
 Else
  MsgBox "Please enter a numeric value."
 End If
End Sub
-->
```
To send the data to the server, the code invokes the **Submit** method on the form object when the data is correct. From there, the server handles the data just as it otherwise would—except that the data is correct before it gets there. Find complete information about the **Submit** method and other methods in the Internet Explorer Scripting Object Model documentation, which can be found on the Microsoft® Web site (http://www.microsoft.com).

So far, you've seen only the standard HTML `<FORM>` objects. Internet Explorer also lets you exploit the full power of ActiveX® controls (formerly called OLE controls) and Java™ objects.
Whether you use an ActiveX® control (formerly called an OLE control) or a Java™ object, Microsoft Visual Basic Scripting Edition and Microsoft® Internet Explorer handle it the same way. If you're using Internet Explorer and have installed the Label control, you can see the page produced by the following code.

You include an object using the <OBJECT> tags and set its initial property values using <PARAM> tags. If you're a Visual Basic programmer, you'll recognize that using the <PARAM> tags is just like setting initial properties for a control on a form. For example, the following set of <OBJECT> and <PARAM> tags adds the ActiveX Label control to a page:

```html
<OBJECT classid="clsid:99B42120-6EC7-11CF-A6C7-00AA00A47DD2" id=lblActiveLbl width=250 height=250 align=left hspace=20 vspace=0
>
<PARAM NAME="Angle" VALUE="90">
```
You can get properties, set properties, and invoke methods just as with any of the form controls. The following code, for example, includes `<FORM>` controls you can use to manipulate two properties of the Label control:

```html
<FORM NAME="LabelControls">
<INPUT TYPE="TEXT" NAME="txtNewText" SIZE=25>
<INPUT TYPE="BUTTON" NAME="cmdChangeIt" VALUE="Change Text">
<INPUT TYPE="BUTTON" NAME="cmdRotate">
</FORM>
```

With the form defined, an event procedure for the cmdChangeIt button changes the label text:

```vbscript
Sub cmdChangeIt_onClick
    Dim TheForm
    Set TheForm = Document.LabelControls
    lblActiveLbl.Caption = TheForm.txtNewText.Value
</script>
```
End Sub
-->
</SCRIPT>

The code qualifies references to controls and values inside the forms just as in the Simple Validation example.

Several ActiveX controls are available for use with Internet Explorer. You can find complete information about the properties, methods, and events there, as well as the class identifiers (CLSID) for the controls on the Microsoft® Web site (http://www.microsoft.com). You can find more information about the <OBJECT> tag on the Internet Explorer 4.0 Author's Guide and HTML Reference page.

Note Earlier releases of Internet Explorer required braces ({})) around the classid attribute and did not conform to the W3C specification. Using braces with the current release generates a "This page uses an outdated version of the <OBJECT> tag" message.
Welcome to the Scripting Run-Time Library Reference

These handy blocks of information will help you explore the many different parts of the Scripting Run-Time Library.

You'll find all the parts of the Scripting Run-Time Library listed alphabetically under the Alphabetic Keyword List. But if you want to examine just one category, say, objects, each language category has its own, more compact section.

How's it work? Click on one of the headings to the left to display a list of items contained in that category. From this list, select the topic that you want to view. Once you've opened that topic, you can easily link to other related sections.

So, go ahead and take a look! Study some statements, mull over the methods, or figure out a few functions. You'll see just how versatile the Scripting Run-Time Library can be!
Feature Information

Microsoft Scripting Run-Time Features
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WriteBlankLines Method
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The FileSystemObject Object Model

When writing scripts for Active Server Pages, the Windows Scripting Host, or other applications where scripting can be used, it's often important to add, move, change, create, or delete folders (directories) and files on the Web server. It may also be necessary to get information about and manipulate drives attached to the Web server.

Scripting allows you to process drives, folders, and files using the FileSystemObject (FSO) object model, which is explained in the following sections:

- [Introduction to the FileSystemObject and the Scripting Run-Time Library Reference](#)
- [FileSystemObject Objects](#)
- [Programming the FileSystemObject](#)
- [Working with Drives and Folders](#)
- [Working with Files](#)
- [FileSystemObject Sample Code](#)
Introduction to the FileSystemObject

The **FileSystemObject (FSO)** object model allows you to use the familiar `object.method` syntax with a rich set of properties, methods, and events to process folders and files.

Use this object-based tool with:

- HTML to create Web pages
- Windows Scripting Host to create batch files for Microsoft Windows
- Script Control to provide a scripting capability to applications developed in other languages

Because use of the FSO on the client side raises serious security issues about providing potentially unwelcome access to a client's local file system, this documentation assumes use of the FSO object model to create scripts executed by Internet Web pages on the server side. Since the server side is used, the Internet Explorer default security settings do not allow client-side use of the FileSystemObject object. Overriding those defaults could subject a local computer to unwelcome access to the file system, which could result in total destruction of the file system's integrity, causing loss of data, or worse.

The FSO object model gives your server-side applications the ability to create, alter, move, and delete folders, or to detect if particular folders exist, and if so, where. You can also find out information about
folders, such as their names, the date they were created or last modified, and so forth.

The FSO object model also makes it easy to process files. When processing files, the primary goal is to store data in a space- and resource-efficient, easy-to-access format. You need to be able to create files, insert and change the data, and output (read) the data. Since storing data in a database, such as Access or SQL Server, adds a significant amount of overhead to your application, storing your data in a binary or text file may be the most efficient solution. You may prefer not to have this overhead, or your data access requirements may not require all the extra features associated with a full-featured database.

The FSO object model, which is contained in the Scripting type library (Scrun.dll), supports text file creation and manipulation through the TextStream object. Although it does not yet support the creation or manipulation of binary files, future support of binary files is planned.
The **FileSystemObject** (FSO) object model contains the following objects and **collections**.

<table>
<thead>
<tr>
<th>Object/Collection</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FileSystemObject</strong></td>
<td>Main object. Contains methods and properties that allow you to create, delete, gain information about, and generally manipulate drives, folders, and files. Many of the methods associated with this object duplicate those in other FSO objects; they are provided for convenience.</td>
</tr>
<tr>
<td><strong>Drive</strong></td>
<td>Object. Contains methods and properties that allow you to gather information about a drive attached to the system, such as its share name and how much room is available. Note that a &quot;drive&quot; isn't necessarily a hard disk, but can be a CD-ROM drive, a RAM disk, and so forth. A drive doesn't need to be physically attached to the system; it can be also be logically connected through a network.</td>
</tr>
<tr>
<td><strong>Drives</strong></td>
<td>Collection. Provides a list of the drives attached to the system, either physically or logically. The <strong>Drives</strong> collection includes all drives, regardless of type. Removable-media drives need not have media inserted for them to appear in this collection.</td>
</tr>
<tr>
<td><strong>File</strong></td>
<td>Object. Contains methods and properties that allow you to create, delete, or move a file.</td>
</tr>
</tbody>
</table>
Also allows you to query the system for a file name, path, and various other properties.

<table>
<thead>
<tr>
<th>Files</th>
<th>Collection. Provides a list of all files contained within a folder.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Folder</strong></td>
<td>Object. Contains methods and properties that allow you to create, delete, or move folders. Also allows you to query the system for folder names, paths, and various other properties.</td>
</tr>
<tr>
<td><strong>Folders</strong></td>
<td>Collection. Provides a list of all the folders within a <em>Folder</em>.</td>
</tr>
<tr>
<td><strong>TextStream</strong></td>
<td>Object. Allows you to read and write text files.</td>
</tr>
</tbody>
</table>
To program with the `FileSystemObject` (FSO) object model:

- Use the `CreateObject` method to create a `FileSystemObject` object.
- Use the appropriate method on the newly created object.
- Access the object's properties.

The FSO object model is contained in the Scripting `type library`, which is located in the Scrrun.dll file. Therefore, you must have Scrrun.dll in the appropriate system directory on your Web server to use the FSO object model.

**Creating a FileSystemObject Object**

First, create a `FileSystemObject` object by using the `CreateObject` method. In VBScript, use the following code to create an instance of the `FileSystemObject`:

```vbscript
Dim fso
Set fso = CreateObject("Scripting.FileSystemObject")
```

This [sample code](#) demonstrates how to create an instance of the `FileSystemObject`.

In JScript, use this code to do the same thing:

```jscript
var fso;
fs = new ActiveXObject("Scripting.FileSystemObject");
```

In both of these examples, `Scripting` is the name of the type library and `FileSystemObject` is the name of the object that you want to create. You
can create only one instance of the **FileSystemObject** object, regardless of how many times you try to create another.

**Using the Appropriate Method**

Second, use the appropriate method of the **FileSystemObject** object. For example, to create a new object, use either **CreateTextFile** or **CreateFolder** (the FSO object model doesn't support the creation or deletion of drives).

To delete objects, use the **DeleteFile** and **DeleteFolder** methods of the **FileSystemObject** object, or the **Delete** method of the **File** and **Folder** objects. You can also copy and move files and folders, by using the appropriate methods.

---

**Note** Some functionality in the **FileSystemObject** object model is redundant. For example, you can copy a file using either the **CopyFile** method of the **FileSystemObject** object, or you can use the **Copy** method of the **File** object. The methods work the same; both exist to offer programming flexibility.

---

**Accessing Existing Drives, Files, and Folders**

To gain access to an existing drive, file, or folder, use the appropriate "get" method of the **FileSystemObject** object:

- **GetDrive**
- **GetFolder**
- **GetFile**

To gain access to an existing file in VBScript:

```vbscript
Dim fso, f1
Set fso = CreateObject("Scripting.FileSystemObject")
Set f1 = fso.GetFile("c:\test.txt")
```
To do the same thing in JScript, use the following code:

```javascript
var fso, f1;
    fso = new ActiveXObject("Scripting.FileSystemObject");
    f1 = fso.GetFile("c:\test.txt");
```

Do not use the "get" methods for newly created objects, since the "create" functions already return a handle to that object. For example, if you create a new folder using the `CreateFolder` method, don't use the `GetFolder` method to access its properties, such as `Name`, `Path`, `Size`, and so forth. Just set a variable to the `CreateFolder` function to gain a handle to the newly created folder, then access its properties, methods, and events. To do this in VBScript, use the following code:

```vbnet
Sub CreateFolder
    Dim fso, fldr
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set fldr = fso.CreateFolder("C:\MyTest")
    Response.Write "Created folder: " & fldr.Name
End Sub
```

To set a variable to the `CreateFolder` function in JScript, use this syntax:

```javascript
function CreateFolder()
{
    var fso, fldr;
    fso = new ActiveXObject("Scripting.FileSystemObject");
    fldr = fso.CreateFolder("C:\MyTest");
    Response.Write("Created folder: " + fldr.Name);
}
```

### Accessing the Object's Properties

Once you have a handle to an object, you can access its properties. For example, to get the name of a particular folder, first create an instance of the object, then get a handle to it with the appropriate method (in this case, the
GetFolder method, since the folder already exists).

Use this code to get a handle to the GetFolder method in VBScript:

```vbscript
Set fldr = fso.GetFolder("c:\")
```

To do the same thing in JScript, use the following code:

```javascript
var fldr = fso.GetFolder("c:\");
```

Now that you have a handle to a Folder object, you can check its Name property. Use the following code to check this in VBScript:

```vbscript
Response.Write "Folder name is: " & fldr.Name
```

To check a Name property in JScript, use this syntax:

```javascript
Response.Write("Folder name is: " + fldr.Name);
```

To find out the last time a file was modified, use the following VBScript syntax:

```vbscript
Dim fso, f1
Set fso = CreateObject("Scripting.FileSystemObject")
' Get a File object to query.
Set f1 = fso.GetFile("c:\detlog.txt")
' Print information.
Response.Write "File last modified: " & f1.DateLastModified
```

To find out the same thing in JScript, use this code:

```javascript
var fso, f1;
fso = new ActiveXObject("Scripting.FileSystemObject");
// Get a File object to query.
f1 = fso.GetFile("c:\\detlog.txt");
// Print information.
Response.Write("File last modified: " + f1.DateLastModified);
```
With the **FileSystemObject** (FSO) object model, you can work with drives and folders programmatically just as you can in the Windows Explorer interactively. You can copy and move folders, get information about drives and folders, and so forth.

**Getting Information About Drives**

The **Drive** object allows you to gain information about the various drives attached to a system, either physically or over a network. Its properties allow you to obtain information about:

- The total size of the drive in bytes (**TotalSize** property)
- How much space is available on the drive in bytes (**AvailableSpace** or **FreeSpace** properties)
- What letter is assigned to the drive (**DriveLetter** property)
- What type of drive it is, such as removable, fixed, network, CD-ROM, or RAM disk (**DriveType** property)
- The drive's serial number (**SerialNumber** property)
- The type of file system the drive uses, such as FAT, FAT32, NTFS, and so forth (**FileSystem** property)
- Whether a drive is available for use (**IsReady** property)
- The name of the share and/or volume (**ShareName** and **VolumeName** properties)
- The path or root folder of the drive (**Path** and **RootFolder** properties)

View the [sample code](#) to see how these properties are used in
**FileSystemObject.**

**Example Usage of the Drive Object**

Use the **Drive** object to gather information about a drive. You won't see a reference to an actual **Drive** object in the following code; instead, use the **GetDrive** method to get a reference to an existing **Drive** object (in this case, drv).

The following example demonstrates how to use the **Drive** object in VBScript:

```vbscript
Sub ShowDriveInfo(drvPath)
    Dim fso, drv, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set drv = fso.GetDrive(fso.GetDriveName(drvPath))
    s = "Drive " & UCase(drvPath) & " - "
    s = s & drv.VolumeName & "<br>"
    s = s & "Total Space: " & FormatNumber(drv.TotalSize / 1024, 0) & " Kb" & "<br>"
    s = s & "Free Space: " & FormatNumber(drv.FreeSpace / 1024, 0) & " Kb" & "<br>"
    Response.Write s
End Sub
```

The following code illustrates the same functionality in JScript:

```javascript
function ShowDriveInfo1(drvPath)
{
    var fso, drv, s ="";
    fso = new ActiveXObject("Scripting.FileSystemObject");
    drv = fso.GetDrive(fso.GetDriveName(drvPath));
    s += "Drive " + drvPath.toUpperCase() + " - ";
    s += drv.VolumeName + "<br>"
    s += "Total Space: " + drv.TotalSize / 1024;
    s += " Kb" + "<br>"
    s += "Free Space: " + drv.FreeSpace / 1024;
```
Common folder tasks and the methods for performing them are described in the following table.

<table>
<thead>
<tr>
<th>Task</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a folder.</td>
<td>FileSystemObject.CreateFolder</td>
</tr>
<tr>
<td>Delete a folder.</td>
<td>Folder.Delete or FileSystemObject.DeleteFolder</td>
</tr>
<tr>
<td>Move a folder.</td>
<td>Folder.Move or FileSystemObject.MoveFolder</td>
</tr>
<tr>
<td>Copy a folder.</td>
<td>Folder.Copy or FileSystemObject.CopyFolder</td>
</tr>
<tr>
<td>Retrieve the name of a folder.</td>
<td>Folder.Name</td>
</tr>
<tr>
<td>Find out if a folder exists on a drive.</td>
<td>FileSystemObject.FolderExists</td>
</tr>
<tr>
<td>Get an instance of an existing Folder object.</td>
<td>FileSystemObject.GetFolder</td>
</tr>
<tr>
<td>Find out the name of a folder's parent folder.</td>
<td>FileSystemObject.GetParentFolderName</td>
</tr>
<tr>
<td>Find out the path of system folders.</td>
<td>FileSystemObject.GetSpecialFolder</td>
</tr>
</tbody>
</table>

View the [sample code](#) to see how many of these methods and properties are used in FileSystemObject.

The following example demonstrates how to use the Folder and FileSystemObject objects to manipulate folders and gain information about them in VBScript:
Sub ShowFolderInfo()
    Dim fso, fldr, s
    ' Get instance of FileSystemObject.
    Set fso = CreateObject("Scripting.FileSystemObject")
    ' Get Drive object.
    Set fldr = fso.GetFolder("c:")
    ' Print parent folder name.
    Response.Write "Parent folder name is: " & fldr & "<br>"
    ' Print drive name.
    Response.Write "contained on drive " & fldr.Drive & "<br>"
    ' Print root file name.
    If fldr.IsRootFolder = True Then
        Response.Write "This is the root folder." & ""<br><br>"
    Else
        Response.Write "This folder isn't a root folder." & "<br><br>"
    End If
    ' Create a new folder with the FileSystemObject object.
    fso.CreateFolder ("C:\Bogus")
    Response.Write "Created folder C:\Bogus" & "<br>"
    ' Print the base name of the folder.
    Response.Write "Basename = " & fso.GetBaseName("c:\bogus")
    ' Delete the newly created folder.
    fso.DeleteFolder ("C:\Bogus")
    Response.Write "Deleted folder C:\Bogus" & "<br>"
End Sub

This example shows how to use the Folder and FileSystemObject objects in JScript:

    function ShowFolderInfo()
    {
        var fso, fldr, s = "";
        // Get instance of FileSystemObject.
        fso = new ActiveXObject("Scripting.FileSystemObject");
// Get Drive object.
fldr = fso.GetFolder("c:");
// Print parent folder name.
Response.Write("Parent folder name is: " + fldr + "<br>");
// Print drive name.
Response.Write("Contained on drive " + fldr.Drive + "<br>");
// Print root file name.
if (fldr.IsRootFolder)
    Response.Write("This is the root folder.");
else
    Response.Write("This folder isn't a root folder.");
Response.Write("<br><br>");
// Create a new folder with the FileSystemObject object.
fso.CreateFolder("C:\Bogus");
Response.Write("Created folder C:\Bogus" + "<br>");
// Print the base name of the folder.
Response.Write("Basename = " + fso.GetBaseName("c:\bogus")
// Delete the newly created folder.
fso.DeleteFolder("C:\Bogus");
Response.Write("Deleted folder C:\Bogus" + "<br>");
}
The sample code described in this section provides a real-world example that demonstrates many of the features available in the FileSystemObject object model. This code shows how all the features of the object model work together, and how to use those features effectively in your own code.

Note that since this code is fairly generic, some additional code and a little tweaking are needed to make this code actually run on your machine. These changes are necessary because of the different ways input and output to the user is handled between Active Server Pages and the Windows Scripting Host.

To run this code on an Active Server Page, use the following steps:

2. Copy the following sample code into that file between the <BODY;>...</BODY> tags.
3. Enclose all the code within <%%> tags.
4. Move the Option Explicit statement from its current position in the code to the very top of your HTML page, positioning it even before the opening <HTML> tag.
5. Place <%%> tags around the Option Explicit statement to ensure that it's run on the server side.
6. Add the following code to the end of the sample code:

   Sub Print(x)
   Response.Write "<PRE><FONT; FACE=""Courier New"" SIZE=""1"">"
   Response.Write x
   Response.Write "</FONT></PRE>"
End Sub
Main

The previous code adds a print procedure that will run on the server side,
but display results on the client side. To run this code on the Windows Scripting Host, add the following code to the end of the sample code:

Sub Print(x)
    WScript.Echo x
End Sub

Main

The code is contained in the following section:

''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' FileSystemObject Sample Code
'
' Copyright 1998 Microsoft Corporation. All Rights Reserved.
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

Option Explicit

''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' Regarding code quality:
'
' 1) The following code does a lot of string manipulation by concatenating short
' strings together with the "&" operator. Since string concatenation
' is expensive, this is a very inefficient way to write code. However, it is a very
' maintainable way to write code, and is used here because this program performs extensive
' disk operations, and because the disk is much slower than the memory operations required to
' concatenate the strings. Keep in mind that this is demonstration code, not production code.
'
' 2) "Option Explicit" is used, because declared variable access is slightly faster than
' undeclared variable access. It also prevents bugs from creeping into your code, such as
' when you misspell DriveTypeCDROM as DriveTypeCDORM.
'
' 3) Error handling is absent from this code, to make the code more readable. Although
' precautions have been taken to ensure that the code will not error in common cases, file
' systems can be unpredictable. In production code, use On Error Resume Next and the
' Err object to trap possible errors.
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' Some handy global variables
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
Dim TabStop
Dim NewLine

Const TestDrive = "C"
Const TestFilePath = "C:\Test"

' Constants returned by Drive.DriveType

Const DriveTypeRemovable = 1
Const DriveTypeFixed = 2
Const DriveTypeNetwork = 3
Const DriveTypeCDROM = 4
Const DriveTypeRAMDisk = 5

' Constants returned by File.Attributes

Const FileAttrNormal = 0
Const FileAttrReadOnly = 1
Const FileAttrHidden = 2
Const FileAttrSystem = 4
Const FileAttrVolume = 8
Const FileAttrDirectory = 16
Const FileAttrArchive = 32
Const FileAttrAlias = 64
Const FileAttrCompressed = 128

' Constants for opening files

Const OpenFileForReading = 1
Const OpenFileForWriting = 2
Const OpenFileForAppending = 8

' ShowDriveType
' Purpose:
'
' Generates a string describing the drive type of a given Drive object.
'
' Demonstrates the following
'
' - Drive.DriveType
'
Function ShowDriveType(Drive)

    Dim S

    Select Case Drive.DriveType
        Case DriveTypeRemovable
            S = "Removable"
        Case DriveTypeFixed
            S = "Fixed"
        Case DriveTypeNetwork
            S = "Network"
        Case DriveTypeCDROM
            S = "CD-ROM"
        Case DriveTypeRAMDisk
            S = "RAM Disk"
        Case Else
            S = "Unknown"
    End Select

    ShowDriveType = S

End Function

.....

' ShowFileAttr
'
' Purpose:
'
' Generates a string describing the attributes of a file or folder.
'
' Demonstrates the following
'
' - File.Attributes
' - Folder.Attributes
'
Function ShowFileAttr(File) ' File can be a file or folder
Dim S  
Dim Attr  

Attr = File.Attributes  

If Attr = 0 Then  
  ShowFileAttr = "Normal"  
  Exit Function  
End If  

If Attr And FileAttrDirectory Then S = S & "Directory "  
If Attr And FileAttrReadOnly Then S = S & "Read-Only "  
If Attr And FileAttrHidden Then S = S & "Hidden "  
If Attr And FileAttrSystem Then S = S & "System "  
If Attr And FileAttrVolume Then S = S & "Volume "  
If Attr And FileAttrArchive Then S = S & "Archive "  
If Attr And FileAttrAlias Then S = S & "Alias "  
If Attr And FileAttrCompressed Then S = S & "Compressed "  

ShowFileAttr = S  

End Function

'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
Function GenerateDriveInformation(FSO)

    Dim Drives
    Dim Drive
    Dim S

    Set Drives = FSO.Drives

    S = "Number of drives:" & TabStop & Drives.Count & NewLine & NewLine

    ' Construct 1st line of report.
    S = S & String(2, TabStop) & "Drive"
    S = S & String(3, TabStop) & "File"
    S = S & TabStop & "Total"
    S = S & TabStop & "Free"
    S = S & TabStop & "Available"
    S = S & TabStop & "Serial" & NewLine

    ' Construct 2nd line of report.
    S = S & "Letter"
    S = S & TabStop & "Path"
    S = S & TabStop & "Type"
    S = S & TabStop & "Ready?"
    S = S & TabStop & "Name"
    S = S & TabStop & "System"
    S = S & TabStop & "Space"
    S = S & TabStop & "Space"
    S = S & TabStop & "Space"
    S = S & TabStop & "Number" & NewLine

    ' Separator line.
    S = S & String(105, "-") & NewLine

    For Each Drive In Drives
        S = S & Drive.DriveLetter
        S = S & TabStop & Drive.Path
        S = S & TabStop & ShowDriveType(Drive)
        S = S & TabStop & Drive.IsReady

        If Drive.IsReady Then
            If DriveTypeNetwork = Drive.DriveType Then
                S = S & TabStop & Drive.ShareName
            Else
                S = S & TabStop & Drive.VolumeName
            End If
        End If

        S = S & TabStop & Drive.FileSystem
        S = S & TabStop & Drive.TotalSize
    Next Drive
S = S & TabStop & Drive.FreeSpace
S = S & TabStop & Drive.AvailableSpace
S = S & TabStop & Hex(Drive.SerialNumber)

End If

S = S & NewLine

Next

GenerateDriveInformation = S

End Function

''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
GenerateFileInformation
'
' Purpose:
'
' Generates a string describing the current state of a file.
'
' Demonstrates the following
'
' - File.Path
' - File.Name
' - File.Type
' - File.DateCreated
' - File.DateLastAccessed
' - File.DateLastModified
' - File.Size
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

Function GenerateFileInformation(File)

Dim S

S = NewLine & "Path:" & TabStop & File.Path
S = S & NewLine & "Name:" & TabStop & File.Name
S = S & NewLine & "Type:" & TabStop & File.Type
S = S & NewLine & "Attribs:" & TabStop & ShowFileAttr(File)
S = S & NewLine & "Created:" & TabStop & File.DateCreated
S = S & NewLine & "Modified:" & TabStop & File.DateLastModified

GenerateFileInformation = S

End Function
Function GenerateFolderInformation(Folder)

    Dim S
    S = "Path:" & TabStop & Folder.Path
    S = S & NewLine & "Name:" & TabStop & Folder.Name
    S = S & NewLine & "Attribs:" & TabStop & ShowFileAttr(Folder)
    S = S & NewLine & "Created:" & TabStop & Folder.DateCreated
    S = S & NewLine & "Accessed:" & TabStop & Folder.DateLastAccessed
    S = S & NewLine & "Modified:" & TabStop & Folder.DateLastModified
    S = S & NewLine & "Size:" & TabStop & Folder.Size & NewLine

    GenerateFolderInformation = S

End Function

Function GenerateAllFolderInformation(Folder)

    Dim S
    S = "Path:" & TabStop & Folder.Path
    S = S & NewLine & "Name:" & TabStop & Folder.Name
    S = S & NewLine & "Attribs:" & TabStop & ShowFileAttr(Folder)
    S = S & NewLine & "Created:" & TabStop & Folder.DateCreated
    S = S & NewLine & "Accessed:" & TabStop & Folder.DateLastAccessed
    S = S & NewLine & "Modified:" & TabStop & Folder.DateLastModified
    S = S & NewLine & "Size:" & TabStop & Folder.Size & NewLine

    GenerateAllFolderInformation = S

End Function
Function GenerateAllFolderInformation(Folder)

    Dim S
    Dim SubFolders
    Dim SubFolder
    Dim Files
    Dim File

    S = "Folder:" & TabStop & Folder.Path & NewLine & NewLine

    Set Files = Folder.Files

    If 1 = Files.Count Then
        S = S & "There is 1 file" & NewLine
    Else
        S = S & "There are " & Files.Count & " files" & NewLine
    End If

    If Files.Count <> 0 Then

        For Each File In Files
            S = S & GenerateFileInformation(File)
        Next

    End If

    Set SubFolders = Folder.SubFolders

    If 1 = SubFolders.Count Then
        S = S & NewLine & "There is 1 sub folder" & NewLine & NewLine
    Else
        S = S & NewLine & "There are " & SubFolders.Count & " sub folders" & NewLine & NewLine
    End If

    If SubFolders.Count <> 0 Then

        For Each SubFolder In SubFolders
            S = S & GenerateFolderInformation(SubFolder)
        Next

        S = S & NewLine

        For Each SubFolder In SubFolders
            S = S & GenerateAllFolderInformation(SubFolder)
        Next

    End If

End Function
End If

GenerateAllFolderInformation = S

End Function

''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
GenerateTestInformation
'

' Purpose:
'
' Generates a string describing the current state of the C:\Test
' folder and all files and subfolders.
'
' Demonstrates the following
'
' - FileSystemObject.DriveExists
' - FileSystemObject.FolderExists
' - FileSystemObject.GetFolder
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

Function GenerateTestInformation(FSO)

    Dim TestFolder
    Dim S

    If Not FSO.DriveExists(TestDrive) Then Exit Function
    If Not FSO.FolderExists(TestFilePath) Then Exit Function

    Set TestFolder = FSO.GetFolder(TestFilePath)

    GenerateTestInformation = GenerateAllFolderInformation(TestFolder)

End Function

''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
DeleteTestDirectory
'

' Purpose:
'
' Cleans up the test directory.
'
' Demonstrates the following
'
' - FileSystemObject.GetFolder
' - FileSystemObject.DeleteFile
Sub DeleteTestDirectory(FSO)
    Dim TestFolder
    Dim SubFolder
    Dim File

    ' Two ways to delete a file:
    FSO.DeleteFile(TestFilePath & "Beatles\OctopusGarden.txt")
    Set File = FSO.GetFile(TestFilePath & "Beatles\BathroomWindow.txt")
    File.Delete

    ' Two ways to delete a folder:
    FSO.DeleteFolder(TestFilePath & "Beatles")
    FSO.DeleteFile(TestFilePath & "\ReadMe.txt")
    Set TestFolder = FSO.GetFolder(TestFilePath)
    TestFolder.Delete
End Sub

CreateLyrics

' Purpose:
' Builds a couple of text files in a folder.
'
' Demonstrates the following
' - FileSystemObject.CreateTextFile
' - TextStream.WriteLine
' - TextStream.Write
' - TextStream.WriteBlankLines
' - TextStream.Close
'
Sub CreateLyrics(Folder)
    Dim TextStream
    Set TextStream = Folder.CreateTextFile("OctopusGarden.txt")
    TextStream.Write("Octopus' Garden ") ' Note that this does not add a line feed to the file.
    TextStream.WriteLine("(by Ringo Starr)")
    TextStream.WriteLine("I'd like to be under the sea in an octopus' garden in the shade,"")
    TextStream.WriteLine("He'd let us in, knows where we've been -- in his octopus' garden in the shade")
    TextStream.WriteBlankLines(2)
    TextStream.Close

    Set TextStream = Folder.CreateTextFile("BathroomWindow.txt")
    TextStream.WriteLine("She Came In Through The Bathroom Window (by Lennon/McCartney)")
    TextStream.WriteLine("She came in through the bathroom window protected by a silver spoon")
    TextStream.WriteLine("But now she sucks her thumb and wanders by the banks of her own lagoon")
    TextStream.WriteBlankLines(2)
    TextStream.Close
End Sub

''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
' GetLyrics
' Purpose:
' - Displays the contents of the lyrics files.
' - Demonstrates the following
' - FileSystemObject.OpenTextFile
' - FileSystemObject.GetFile
' - TextStream.ReadAll
' - TextStream.Close
' - File.OpenAsTextStream
' - TextStream.AtEndOfStream
' - TextStream.ReadLine
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
Function GetLyrics(FSO)
    Dim TextStream
Dim S  
Dim File

' There are several ways to open a text file, and several ways to read the  
' data out of a file. Here's two ways to do each:

Set TextStream = FSO.OpenTextFile(TestFilePath & "]\Beatles\OctopusGarden.txt", OpenFileForReading)

S = TextStream.ReadAll & NewLine & NewLine  
TextStream.Close

Set File = FSO.GetFile(TestFilePath & "]\Beatles\BathroomWindow.txt")
Set TextStream = File.OpenAsTextStream(OpenFileForReading)
Do While Not TextStream.AtEndOfStream  
   S = S & TextStream.ReadLine & NewLine
Loop  
TextStream.Close

GetLyrics = S

End Function

'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
Function BuildTestDirectory(FSO)

  Dim TestFolder
  Dim SubFolders
  Dim SubFolder
  Dim TextStream

  ' Bail out if (a) the drive does not exist, or if (b) the directory being built
  ' already exists.

  If Not FSO.DriveExists(TestDrive) Then
    BuildTestDirectory = False
    Exit Function
  End If

  If FSO.FolderExists(TestFilePath) Then
    BuildTestDirectory = False
    Exit Function
  End If

  Set TestFolder = FSO.CreateFolder(TestFilePath)

  Set TextStream = FSO.CreateTextFile(TestFilePath & "\ReadMe.txt")
  TextStream.WriteLine("My song lyrics collection")
  TextStream.Close

  Set SubFolders = TestFolder.SubFolders

  Set SubFolder = SubFolders.Add("Beatles")

  CreateLyrics SubFolder

  BuildTestDirectory = True

End Function

' The main routine
' First, it creates a test directory, along with some subfolders and files.
' Then, it dumps some information about the available disk drives and
' about the test directory, and then cleans everything up again.
'
Sub Main

Dim FSO

' Set up global data.
TabStop = Chr(9)
NewLine = Chr(10)

Set FSO = CreateObject("Scripting.FileSystemObject")

If Not BuildTestDirectory(FSO) Then
    Print "Test directory already exists or cannot be created. Cannot continue."
    Exit Sub
End If

Print GenerateDriveInformation(FSO) & NewLine & NewLine
Print GenerateTestInformation(FSO) & NewLine & NewLine
Print GetLyrics(FSO) & NewLine & NewLine
DeleteTestDirectory(FSO)

End Sub
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# Microsoft Scripting Run-Time Library Reference

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Description

Returns the absolute value of a number.

Syntax

Abs(number)

The number argument can be any valid numeric expression. If number contains Null, Null is returned; if it is an uninitialized variable, zero is returned.

Remarks

The absolute value of a number is its unsigned magnitude. For example, Abs(-1) and Abs(1) both return 1.

The following example uses the Abs function to compute the absolute value of a number:

Dim MyNumber
MyNumber = Abs(50.3) ' Returns 50.3.
MyNumber = Abs(-50.3) ' Returns 50.3.
Operator

See Also

Description

Sums two numbers.

Syntax

\[ result = expression1 + expression2 \]

The + operator syntax has these parts:

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<tr>
<td>result</td>
<td>Any numeric variable.</td>
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<tr>
<td>expression1</td>
<td>Any expression.</td>
</tr>
<tr>
<td>expression2</td>
<td>Any expression.</td>
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</table>

Remarks

Although you can also use the + operator to concatenate two character strings, you should use the & operator for concatenation to eliminate ambiguity and provide self-documenting code.

When you use the + operator, you may not be able to determine whether addition or string concatenation will occur.

The underlying subtype of the expressions determines the behavior of the + operator in the following way:

<table>
<thead>
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<tr>
<td>Both expressions are numeric</td>
<td>Add.</td>
</tr>
<tr>
<td>Both expressions are strings</td>
<td>Concatenate.</td>
</tr>
</tbody>
</table>
One expression is numeric and the other is a string.

If one or both expressions are Null expressions, result is Null. If both expressions are Empty, result is an Integer subtype. However, if only one expression is Empty, the other expression is returned unchanged as result.
And Operator

Description

Performs a logical conjunction on two expressions.

Syntax

\[ \text{result} = \text{expression1 And expression2} \]

The And operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>expression1</td>
<td>Any expression.</td>
</tr>
<tr>
<td>expression2</td>
<td>Any expression.</td>
</tr>
</tbody>
</table>

Remarks

If, and only if, both expressions evaluate to True, result is True. If either expression evaluates to False, result is False. The following table illustrates how result is determined:

<table>
<thead>
<tr>
<th>If expression1 is</th>
<th>And expression2 is</th>
<th>The result is</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>True</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>True</td>
<td>Null</td>
<td>Null</td>
</tr>
<tr>
<td>False</td>
<td>True</td>
<td>False</td>
</tr>
<tr>
<td>False</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>False</td>
<td>Null</td>
<td>False</td>
</tr>
</tbody>
</table>
The **And** operator also performs a **bitwise comparison** of identically positioned bits in two **numeric expressions** and sets the corresponding bit in **result** according to the following table:

<table>
<thead>
<tr>
<th>If bit in expression1 is</th>
<th>And bit in expression2 is</th>
<th>The result is</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Array Function

Description

Returns a Variant containing an array.

Syntax

Array(arglist)

The required arglist argument is a comma-delimited list of values that are assigned to the elements of an array contained with the Variant. If no arguments are specified, an array of zero length is created.

Remarks

The notation used to refer to an element of an array consists of the variable name followed by parentheses containing an index number indicating the desired element. In the following example, the first statement creates a variable named A. The second statement assigns an array to variable A. The last statement assigns the value contained in the second array element to another variable.

Dim A
A = Array(10,20,30)
B = A(2) ' B is now 30.
**Note** A variable that is not declared as an array can still contain an array. Although a **Variant** variable containing an array is conceptually different from an array variable containing **Variant** elements, the array elements are accessed in the same way.
Function

Description

Returns the ANSI character code corresponding to the first letter in a string.

Syntax

\[ \text{Asc}(\text{string}) \]

The \text{string} argument is any valid \textit{string expression}. If the \text{string} contains no characters, a run-time error occurs.

Remarks

In the following example, \textbf{Asc} returns the ANSI character code of the first letter of each string:

\begin{verbatim}
Dim MyNumber
MyNumber = Asc("A") ' Returns 65.
MyNumber = Asc("a") ' Returns 97.
MyNumber = Asc("Apple") ' Returns 65.
\end{verbatim}

\textbf{Note} The \textbf{AscB} function is used with byte data contained in a string. Instead of returning the character code for the first character, \textbf{AscB} returns the first byte. \textbf{AscW} is provided for 32-
bit platforms that use Unicode characters. It returns the Unicode (wide) character code, thereby avoiding the conversion from Unicode to ANSI.
Operator

See Also

Description

Assigns a value to a variable or property.

Syntax

variable = value

The = operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>variable</td>
<td>Any variable or any writable property.</td>
</tr>
<tr>
<td>value</td>
<td>Any numeric or string literal, constant, or expression.</td>
</tr>
</tbody>
</table>

Remarks

The name on the left side of the equal sign can be a simple scalar variable or an element of an array. Properties on the left side of the equal sign can only be those properties that are writable at run time.
Atn Function

Description

Returns the arctangent of a number.

Syntax

Atn(number)

The number argument can be any valid numeric expression.

Remarks

The Atn function takes the ratio of two sides of a right triangle (number) and returns the corresponding angle in radians. The ratio is the length of the side opposite the angle divided by the length of the side adjacent to the angle. The range of the result is -\( \pi/2 \) to \( \pi/2 \) radians.

To convert degrees to radians, multiply degrees by \( \pi/180 \). To convert radians to degrees, multiply radians by \( 180/\pi \).

The following example uses Atn to calculate the value of pi:

Dim pi
pi = 4 * Atn(1)  ' Calculate the value of pi.

Note Atn is the inverse trigonometric function of Tan, which
takes an angle as its argument and returns the ratio of two sides of a right triangle. Do not confuse Atn with the cotangent, which is the simple inverse of a tangent (1/tangent).
**Call Statement**

**Description**

Transfers control to a **Sub** or **Function** procedure.

**Syntax**

```
[Call] name [argumentlist]
```

The **Call** statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call</td>
<td>Optional keyword. If specified, you must enclose <code>argumentlist</code> in parentheses. For example: Call MyProc(0)</td>
</tr>
</tbody>
</table>

`name` Required. Name of the procedure to call. `argumentlist` Optional. Comma-delimited list of variables, **arrays**, or **expressions** to pass to the procedure.

**Remarks**

You are not required to use the **Call** keyword when calling a procedure. However, if you use the **Call** keyword to call a procedure that requires arguments, `argumentlist` must be enclosed in parentheses. If you omit the **Call** keyword, you also must omit the parentheses around `argumentlist`. If you use either **Call** syntax to call any intrinsic or user-defined function, the function's return value is discarded.
Call MyFunction("Hello World")

Function MyFunction(text)
    MsgBox text
End Function
CBool Function

Description

Returns an expression that has been converted to a Variant of subtype Boolean.

Syntax

CBool(expression)

The expression argument is any valid expression.

Remarks

If expression is zero, False is returned; otherwise, True is returned. If expression can't be interpreted as a numeric value, a run-time error occurs.

The following example uses the CBool function to convert an expression to a Boolean. If the expression evaluates to a nonzero value, CBool returns True; otherwise, it returns False.

Dim A, B, Check
A = 5: B = 5 ' Initialize variables.
Check = CBool(A = B) ' Check contains True.
A = 0 ' Define variable.
Check = CBool(A) ' Check contains False.
CByte Function

Description

Returns an expression that has been converted to a Variant of subtype Byte.

Syntax

CByte(expression)

The expression argument is any valid expression.

Remarks

In general, you can document your code using the subtype conversion functions to show that the result of some operation should be expressed as a particular data type rather than the default data type. For example, use CByte to force byte arithmetic in cases where currency, single-precision, double-precision, or integer arithmetic normally would occur.

Use the CByte function to provide internationally aware conversions from any other data type to a Byte subtype. For example, different decimal separators are properly recognized depending on the locale setting of your system, as are different thousand separators.

If expression lies outside the acceptable range for the Byte subtype, an error occurs. The following example uses the CByte function to convert an expression to a byte:

Dim MyDouble, MyByte
MyDouble = 125.5678   ' MyDouble is a Double
MyByte = CByte(MyDouble)   ' MyByte contains
CCur Function

Description

Returns an expression that has been converted to a Variant of subtype Currency.

Syntax

CCur(expression)

The expression argument is any valid expression.

Remarks

In general, you can document your code using the subtype conversion functions to show that the result of some operation should be expressed as a particular data type rather than the default data type. For example, use CCur to force currency arithmetic in cases where integer arithmetic normally would occur.

You should use the CCur function to provide internationally aware conversions from any other data type to a Currency subtype. For example, different decimal separators and thousands separators are properly recognized depending on the locale setting of your system.

The following example uses the CCur function to convert an expression to a Currency:

Dim MyDouble, MyCurr
MyDouble = 543.214588 ' MyDouble is a Double
MyCurr = CCur(MyDouble * 2) ' Convert result to a Currency (1086.4292).
CDate Function

Description

Returns an expression that has been converted to a Variant of subtype Date.

Syntax

CDate(date)

The date argument is any valid date expression.

Remarks

Use the IsDate function to determine if date can be converted to a date or time. CDate recognizes date literals and time literals as well as some numbers that fall within the range of acceptable dates. When converting a number to a date, the whole number portion is converted to a date. Any fractional part of the number is converted to a time of day, starting at midnight.

CDate recognizes date formats according to the locale setting of your system. The correct order of day, month, and year may not be determined if it is provided in a format other than one of the recognized date settings. In addition, a long date format is not recognized if it also contains the day-of-the-week string.

The following example uses the CDate function to convert a string to a
date. In general, hard coding dates and times as strings (as shown in this example) is not recommended. Use date and time literals (such as #10/19/1962#, #4:45:23 PM#) instead.

```vba
MyDate = "October 19, 1962" ' Define date.
MyShortDate = CDate(MyDate) ' Convert to Dat
MyTime = "4:35:47 PM" ' Define time.
MyShortTime = CDate(MyTime) ' Convert to Dat
```
Description

Returns an expression that has been converted to a **Variant** of subtype **Double**.

Syntax

```
CDbl(expression)
```

The *expression* argument is any valid expression.

Remarks

In general, you can document your code using the subtype conversion functions to show that the result of some operation should be expressed as a particular data type rather than the default data type. For example, use **CDbl** or **CSng** to force double-precision or single-precision arithmetic in cases where currency or integer arithmetic normally would occur.

Use the **CDbl** function to provide internationally aware conversions from any other data type to a **Double** subtype. For example, different decimal separators and thousands separators are properly recognized depending on the **locale** setting of your system.

This example uses the **CDbl** function to convert an expression to a **Double**.

```
Dim MyCurr, MyDouble
```
MyCurr = CCur(234.456784)  ' MyCurr is a Currency (234.4567).
MyDouble = CDb1(MyCurr * 8.2 * 0.01)  ' Convert result to a Double (19.2254576).
Chr Function

See Also

Description

Returns the character associated with the specified ANSI character code.

Syntax

Chr(charcode)

The charcode argument is a number that identifies a character.

Remarks

Numbers from 0 to 31 are the same as standard, nonprintable ASCII codes. For example, Chr(10) returns a linefeed character.

The following example uses the Chr function to return the character associated with the specified character code:

Dim MyChar
MyChar = Chr(65) ' Returns A.
MyChar = Chr(97) ' Returns a.
MyChar = Chr(62) ' Returns >.
MyChar = Chr(37) ' Returns %.
**Note**  The **ChrB** function is used with byte data contained in a string. Instead of returning a character, which may be one or two bytes, **ChrB** always returns a single byte. **ChrW** is provided for 32-bit platforms that use Unicode characters. Its argument is a Unicode (wide) character code, thereby avoiding the conversion from ANSI to Unicode.
CInt Function

Description

Returns an expression that has been converted to a Variant of subtype Integer.

Syntax

CInt(expression)

The expression argument is any valid expression.

Remarks

In general, you can document your code using the subtype conversion functions to show that the result of some operation should be expressed as a particular data type rather than the default data type. For example, use CInt or CLng to force integer arithmetic in cases where currency, single-precision, or double-precision arithmetic normally would occur.

Use the CInt function to provide internationally aware conversions from any other data type to an Integer subtype. For example, different decimal separators are properly recognized depending on the locale setting of your system, as are different thousand separators.

If expression lies outside the acceptable range for the Integer subtype, an error occurs.

The following example uses the CInt function to convert a value to an
Integer:

```
Dim MyDouble, MyInt
MyDouble = 2345.5678  ' MyDouble is a Double.
MyInt = CInt(MyDouble)   ' MyInt contains 2346.
```

**Note**  *CInt* differs from the *Fix* and *Int* functions, which truncate, rather than round, the fractional part of a number. When the fractional part is exactly 0.5, the *CInt* function always rounds it to the nearest even number. For example, 0.5 rounds to 0, and 1.5 rounds to 2.
**Class**

**Object**

**Description**

The object created using the **Class** statement. Provides access to the events of the **class**.

**Remarks**

You cannot explicitly declare a **variable** to be of type Class. In the VBScript context, the term "class object" refers to any object defined using the VBScript **Class** statement.

Once you have created a class definition using the **Class** statement, you can create an instance of the class using the following form:

```vbscript
Dim X
Set X = New classname
```

Because VBScript is a late-bound language, you cannot do any of the following:

```vbscript
Dim X as New classname
```

or

```vbscript
Dim X
```
\[
X = \text{New } \textit{classname}
\]

or

\[
\text{Set } X = \text{New Scripting.FileSystemObject}
\]
**Class Statement**

**Description**

Declares the name of a class, as well as a definition of the variables, properties, and methods that comprise the class.

**Syntax**

```
Class name
    statements
End Class
```

The Class statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Required. Name of the Class; follows standard variable naming conventions.</td>
</tr>
<tr>
<td>statements</td>
<td>Required. One or more statements that define the variables, properties, and methods of the Class.</td>
</tr>
</tbody>
</table>

**Remarks**

Within a Class block, members are declared as either Private or Public using the appropriate declaration statements. Anything declared as Private is visible only within the Class block. Anything declared as Public is visible within the Class block, as well as by code outside the Class block. Anything not explicitly declared as either Private or Public is Public by default.
Procedures (either Sub or Function) declared Public within the class block become methods of the class. Public variables serve as properties of the class, as do properties explicitly declared using Property Get, Property Let, and Property Set. Default properties and methods for the class are specified in their declarations using the Default keyword. See the individual declaration statement topics for information on how this keyword is used.
Clear Method

Description

Clears all property settings of the **Err** object.

Syntax

```
object.Clear
```

The object is always the **Err** object.

Remarks

Use **Clear** to explicitly clear the **Err** object after an error has been handled. This is necessary, for example, when you use deferred error handling with **On Error Resume Next**. VBScript calls the **Clear** method automatically whenever any of the following statements is executed:

- **On Error Resume Next**
- **Exit Sub**
- **Exit Function**

The following example illustrates use of the **Clear** method:

```
On Error Resume Next
Err.Raise 6 ' Raise an overflow error.
MsgBox ("Error # " & CStr(Err.Number) & " " & Err.Description)
Err.Clear ' Clear the error.
```
Description

Returns an expression that has been converted to a **Variant** of subtype **Long**.

Syntax

\[ \text{CLng(expression)} \]

The *expression* argument is any valid expression.

Remarks

In general, you can document your code using the subtype conversion functions to show that the result of some operation should be expressed as a particular data type rather than the default data type. For example, use **CInt** or **CLng** to force integer arithmetic in cases where currency, single-precision, or double-precision arithmetic normally would occur.

Use the **CLng** function to provide internationally aware conversions from any other data type to a **Long** subtype. For example, different decimal separators are properly recognized depending on the **locale** setting of your system, as are different thousand separators.

If *expression* lies outside the acceptable range for the **Long** subtype, an error occurs.

The following example uses the **CLng** function to convert a value to a
Long:

```
Dim MyVal1, MyVal2, MyLong1, MyLong2
MyVal1 = 25427.45: MyVal2 = 25427.55   ' MyVal
MyLong1 = CLng(MyVal1)               ' MyLong1
MyLong2 = CLng(MyVal2)               ' MyLong2
```

**Note**  
CLng differs from the Fix and Int functions, which truncate, rather than round, the fractional part of a number. When the fractional part is exactly 0.5, the CLng function always rounds it to the nearest even number. For example, 0.5 rounds to 0, and 1.5 rounds to 2.
Comparison Constants

See Also

Since these constants are built into VBScript, you don't have to define them before using them. Use them anywhere in your code to represent the values shown for each.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbBinaryCompare</td>
<td>0</td>
<td>Perform a binary comparison.</td>
</tr>
<tr>
<td>vbTextCompare</td>
<td>1</td>
<td>Perform a textual comparison.</td>
</tr>
</tbody>
</table>
Operator

See Also

Description

Forces string concatenation of two expressions.

Syntax

\[ result = expression1 \& expression2 \]

The & operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any variable.</td>
</tr>
<tr>
<td>expression1</td>
<td>Any expression.</td>
</tr>
<tr>
<td>expression2</td>
<td>Any expression.</td>
</tr>
</tbody>
</table>

Remarks

Whenever an expression is not a string, it is converted to a String subtype. If both expressions are Null, result is also Null. However, if only one expression is Null, that expression is treated as a zero-length string (""") when concatenated with the other expression. Any expression that is Empty is also treated as a zero-length string.
Const Statement

See Also

Description

Declares constants for use in place of literal values.

Syntax

[Public | Private] Const constname = expression

The Const statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Optional. Keyword used at script level to declare constants that are available to all procedures in all scripts. Not allowed in procedures.</td>
</tr>
<tr>
<td>Private</td>
<td>Optional. Keyword used at script level to declare constants that are available only within the script where the declaration is made. Not allowed in procedures.</td>
</tr>
<tr>
<td>constname</td>
<td>Required. Name of the constant; follows standard variable naming conventions.</td>
</tr>
<tr>
<td>expression</td>
<td>Required. Literal or other constant, or any combination that includes all arithmetic or logical operators except Is.</td>
</tr>
</tbody>
</table>

Remarks

Constants are public by default. Within procedures, constants are always private; their visibility can't be changed. Within a script, the default visibility of a script-level constant can be changed using the Private
keyword.

To combine several constant declarations on the same line, separate each constant assignment with a comma. When constant declarations are combined in this way, the **Public** or **Private** keyword, if used, applies to all of them.

You can’t use variables, user-defined functions, or intrinsic VBScript functions (such as `Chr`) in constant declarations. By definition, they can’t be constants. You also can’t create a constant from any expression that involves an operator, that is, only simple constants are allowed. Constants declared in a **Sub** or **Function** procedure are local to that procedure. A constant declared outside a procedure is defined throughout the script in which it is declared. You can use constants anywhere you can use an expression. The following code illustrates the use of the **Const** statement:

```vbnet
Const MyVar = 459 ' Cons
Private Const MyString = "HELP" ' Decl
Const MyStr = "Hello", MyNumber = 3.4567 ' 
```

**Note**  Constants can make your scripts self-documenting and easy to modify. Unlike variables, constants can’t be inadvertently changed while your script is running.
Cos Function

See Also

Description

Returns the cosine of an angle.

Syntax

\[ \text{Cos}(\text{number}) \]

The \textit{number} argument can be any valid \textit{numeric expression} that expresses an angle in radians.

Remarks

The \textbf{Cos} function takes an angle and returns the ratio of two sides of a right triangle. The ratio is the length of the side adjacent to the angle divided by the length of the hypotenuse. The result lies in the range \(-1\) to \(1\).

To convert degrees to radians, multiply degrees by \(\pi/180\). To convert radians to degrees, multiply radians by \(180/\pi\).

The following example uses the \textbf{Cos} function to return the cosine of an angle:

\begin{verbatim}
Dim MyAngle, MySecant
MyAngle = 1.3 \quad \text{' Define angle in radians.}
MySecant = 1 / \text{Cos(MyAngle)} \quad \text{' Calculate secant.}
\end{verbatim}
CreateObject Function

See Also

Description

Creates and returns a reference to an Automation object.

Syntax

CreateObject(servername.typename [, location])

The `CreateObject` function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>servername</code></td>
<td>Required. The name of the application providing the object.</td>
</tr>
<tr>
<td><code>typename</code></td>
<td>Required. The type or class of the object to create.</td>
</tr>
<tr>
<td><code>location</code></td>
<td>Optional. The name of the network server where the object is to be created. This feature is available in version 5.1 or later.</td>
</tr>
</tbody>
</table>

Remarks

Automation servers provide at least one type of object. For example, a word-processing application may provide an application object, a document object, and a toolbar object.

To create an Automation object, assign the object returned by `CreateObject` to an object variable:

```dim ExcelSheet
Set ExcelSheet = CreateObject("Excel.Sheet")
```
This code starts the application that creates the object (in this case, a Microsoft Excel spreadsheet). Once an object is created, refer to it in code using the object variable you defined. As shown in the following example, you can access properties and methods of the new object using the object variable, ExcelSheet, and other Excel objects, including the Application object and the ActiveSheet.Cells collection:

' Make Excel visible through the Application objec
ExcelSheet.Application.Visible = True
' Place some text in the first cell of the sheet.
ExcelSheet.ActiveSheet.Cells(1,1).Value = "This is
' Save the sheet.
ExcelSheet.SaveAs "C:\DOCS\TEST.XLS"
' Close Excel with the Quit method on the Application
ExcelSheet.Application.Quit
' Release the object variable.
Set ExcelSheet = Nothing

Creating an object on a remote server can only be accomplished when Internet security is turned off. You can create an object on a remote networked computer by passing the name of the computer to the servername argument of CreateObject. That name is the same as the machine name portion of a sharename. For a network share named "\myserver\public", the servername is "myserver". In addition, you can specify servername using DNS format or an IP address.

The following code returns the version number of an instance of Excel running on a remote network computer named "myserver":

Function GetVersion
    Dim XLApp
    Set XLApp = CreateObject("Excel.Application,"
GetVersion = XLApp.Version
End Function

An error occurs if the specified remote server does not exist or cannot be found.
CSng

Function

See Also

Description

Returns an expression that has been converted to a **Variant** of subtype **Single**.

Syntax

```
CSng(expression)
```

The *expression* argument is any valid expression.

Remarks

In general, you can document your code using the data type conversion functions to show that the result of some operation should be expressed as a particular data type rather than the default data type. For example, use **CDbl** or **CSng** to force double-precision or single-precision arithmetic in cases where currency or integer arithmetic normally would occur.

Use the **CSng** function to provide internationally aware conversions from any other data type to a **Single** subtype. For example, different decimal separators are properly recognized depending on the **locale** setting of your system, as are different thousand separators.

If *expression* lies outside the acceptable range for the **Single** subtype, an error occurs.

The following example uses the **CSng** function to convert a value to a
Single:

Dim MyDouble1, MyDouble2, MySingle1, MySingle2
MyDouble1 = 75.3421115: MyDouble2 = 75.3421555
MySingle1 = CSng(MyDouble1) 'MySingle1 contains 75.34211.
MySingle2 = CSng(MyDouble2) 'MySingle2 contains 75.34216.
CStr Function

See Also

Description

Returns an expression that has been converted to a Variant of subtype String.

Syntax

CStr(expression)

The expression argument is any valid expression.

Remarks

In general, you can document your code using the data type conversion functions to show that the result of some operation should be expressed as a particular data type rather than the default data type. For example, use CStr to force the result to be expressed as a String.

You should use the CStr function instead of Str to provide internationally aware conversions from any other data type to a String subtype. For example, different decimal separators are properly recognized depending on the locale setting of your system.

The data in expression determines what is returned according to the following table:

<table>
<thead>
<tr>
<th>If</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following example uses the **CStr** function to convert a numeric value to a **String**:

```vbs
Dim MyDouble, MyString
MyDouble = 437.324 ' MyDouble is a Double
MyString = CStr(MyDouble) ' MyString contains
```
Since these constants are built into VBScript, you don't have to define them before using them. Use them anywhere in your code to represent the values shown for each.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbSunday</td>
<td>1</td>
<td>Sunday</td>
</tr>
<tr>
<td>vbMonday</td>
<td>2</td>
<td>Monday</td>
</tr>
<tr>
<td>vbTuesday</td>
<td>3</td>
<td>Tuesday</td>
</tr>
<tr>
<td>vbWednesday</td>
<td>4</td>
<td>Wednesday</td>
</tr>
<tr>
<td>vbThursday</td>
<td>5</td>
<td>Thursday</td>
</tr>
<tr>
<td>vbFriday</td>
<td>6</td>
<td>Friday</td>
</tr>
<tr>
<td>vbSaturday</td>
<td>7</td>
<td>Saturday</td>
</tr>
<tr>
<td>vbUseSystem</td>
<td>0</td>
<td>Use the date format contained in the regional settings for your computer.</td>
</tr>
<tr>
<td>vbUseSystemDayOfWeek</td>
<td>0</td>
<td>Use the day of the week specified in your system settings for the first day of the week.</td>
</tr>
<tr>
<td>vbFirstJan1</td>
<td>1</td>
<td>Use the week in which January 1 occurs (default).</td>
</tr>
<tr>
<td>vbFirstFourDays</td>
<td>2</td>
<td>Use the first week that has at least four days in the new year.</td>
</tr>
</tbody>
</table>
Use the first full week of the year.
Since these constants are built into VBScript, you don't have to define them before using them. Use them anywhere in your code to represent the values shown for each.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbGeneralDate</td>
<td>0</td>
<td>Display a date and/or time. For real numbers, display a date and time. If there is no fractional part, display only a date. If there is no integer part, display time only. Date and time display is determined by your system settings.</td>
</tr>
<tr>
<td>vbLongDate</td>
<td>1</td>
<td>Display a date using the long date format specified in your computer's regional settings.</td>
</tr>
<tr>
<td>vbShortDate</td>
<td>2</td>
<td>Display a date using the short date format specified in your computer's regional settings.</td>
</tr>
<tr>
<td>vbLongTime</td>
<td>3</td>
<td>Display a time using the long time format specified in your computer's regional settings.</td>
</tr>
<tr>
<td>vbShortTime</td>
<td>4</td>
<td>Display a time using the short time format specified in your computer's regional settings.</td>
</tr>
</tbody>
</table>
Function

See Also

Description

Returns the current system date.

Syntax

Date

Remarks

The following example uses the Date function to return the current system date:

Dim MyDate
MyDate = Date ' MyDate contains the current system date.
# DateAdd Function

## See Also

## Description

Returns a date to which a specified time interval has been added.

## Syntax

```
DateAdd(interval, number, date)
```

The `DateAdd` function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>interval</code></td>
<td>Required. String expression that is the interval you want to add. See Settings section for values.</td>
</tr>
<tr>
<td><code>number</code></td>
<td>Required. Numeric expression that is the number of interval you want to add. The numeric expression can either be positive, for dates in the future, or negative, for dates in the past.</td>
</tr>
<tr>
<td><code>date</code></td>
<td>Required. Variant or literal representing the date to which <code>interval</code> is added.</td>
</tr>
</tbody>
</table>

## Settings

The `interval` argument can have the following values:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>yyyy</code></td>
<td>Year</td>
</tr>
<tr>
<td><code>q</code></td>
<td>Quarter</td>
</tr>
<tr>
<td><code>m</code></td>
<td>Month</td>
</tr>
<tr>
<td><code>y</code></td>
<td>Day of year</td>
</tr>
<tr>
<td><code>d</code></td>
<td>Day</td>
</tr>
</tbody>
</table>
You can use the **DateAdd** function to add or subtract a specified time interval from a date. For example, you can use **DateAdd** to calculate a date 30 days from today or a time 45 minutes from now. To add days to *date*, you can use Day of Year ("y"), Day ("d"), or Weekday ("w").

The **DateAdd** function won't return an invalid date. The following example adds one month to January 31:

\[
\text{NewDate} = \text{DateAdd}("m", 1, "31-Jan-95")
\]

In this case, **DateAdd** returns 28-Feb-95, not 31-Feb-95. If *date* is 31-Jan-96, it returns 29-Feb-96 because 1996 is a leap year.

If the calculated date would precede the year 100, an error occurs.

If number isn't a **Long** value, it is rounded to the nearest whole number before being evaluated.
**DateDiff Function**

See Also

**Description**

Returns the number of intervals between two dates.

**Syntax**

`DateDiff(interval, date1, date2 [,firstdayofweek[, firstweekofyear]])`

The `DateDiff` function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>interval</code></td>
<td>Required. <a href="https://msdn.microsoft.com/en-us/library/windows/desktop/bb492148.aspx">String expression</a> that is the interval you want to use to calculate the differences between <code>date1</code> and <code>date2</code>. See Settings section for values.</td>
</tr>
<tr>
<td><code>date1, date2</code></td>
<td>Required. Date expressions. Two dates you want to use in the calculation.</td>
</tr>
<tr>
<td><code>firstdayofweek</code></td>
<td>Optional. Constant that specifies the day of the week. If not specified, Sunday is assumed. See Settings section for values.</td>
</tr>
<tr>
<td><code>firstweekofyear</code></td>
<td>Optional. Constant that specifies the first week of the year. If not specified, the first week is assumed to be the week in which January 1 occurs. See Settings section for values.</td>
</tr>
</tbody>
</table>

**Settings**

The `interval` argument can have the following values:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>yyyy</code></td>
<td>Year</td>
</tr>
<tr>
<td>Constant</td>
<td>Value</td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>vbUseSystem</td>
<td>0</td>
</tr>
<tr>
<td>vbSunday</td>
<td>1</td>
</tr>
<tr>
<td>vbMonday</td>
<td>2</td>
</tr>
<tr>
<td>vbTuesday</td>
<td>3</td>
</tr>
<tr>
<td>vbWednesday</td>
<td>4</td>
</tr>
<tr>
<td>vbThursday</td>
<td>5</td>
</tr>
<tr>
<td>vbFriday</td>
<td>6</td>
</tr>
<tr>
<td>vbSaturday</td>
<td>7</td>
</tr>
</tbody>
</table>

The `firstdayofweek` argument can have the following values:

The `firstweekofyear` argument can have the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbUseSystem</td>
<td>0</td>
<td>Use National Language Support (NLS) API setting.</td>
</tr>
<tr>
<td>vbFirstJan1</td>
<td>1</td>
<td>Start with the week in which January 1 occurs (default).</td>
</tr>
<tr>
<td>vbFirstFourDays</td>
<td>2</td>
<td>Start with the week that has at least four days in the new year.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Start with the first full week of the new year.</td>
</tr>
</tbody>
</table>
Remarks

You can use the **DateDiff** function to determine how many specified time intervals exist between two dates. For example, you might use **DateDiff** to calculate the number of days between two dates, or the number of weeks between today and the end of the year.

To calculate the number of days between `date1` and `date2`, you can use either Day of year ("y") or Day ("d"). When interval is Weekday ("w"), **DateDiff** returns the number of weeks between the two dates. If `date1` falls on a Monday, **DateDiff** counts the number of Mondays until `date2`. It counts `date2` but not `date1`. If interval is Week ("ww"), however, the **DateDiff** function returns the number of calendar weeks between the two dates. It counts the number of Sundays between `date1` and `date2`. **DateDiff** counts `date2` if it falls on a Sunday; but it doesn't count `date1`, even if it does fall on a Sunday.

If `date1` refers to a later point in time than `date2`, the **DateDiff** function returns a negative number.

The **firstdayofweek** argument affects calculations that use the "w" and "ww" interval symbols.

If `date1` or `date2` is a date literal, the specified year becomes a permanent part of that date. However, if `date1` or `date2` is enclosed in quotation marks ("" ) and you omit the year, the current year is inserted in your code each time the `date1` or `date2` expression is evaluated. This makes it possible to write code that can be used in different years.

When comparing December 31 to January 1 of the immediately succeeding year, **DateDiff** for Year ("yyyy") returns 1 even though only a day has elapsed.

The following example uses the **DateDiff** function to display the number of days between a given date and today:

```vba
Function DiffADate(theDate)
    DiffADate = "Days from today: " & DateDiff("d", Now, theDate)
End Function
```
**DatePart Function**

**Description**

Returns the specified part of a given date.

**Syntax**

\[
\text{DatePart}(\text{interval, date[, firstdayofweek[, firstweekofyear]]})
\]

The \text{DatePart} function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\text{interval}</td>
<td>Required. \text{String expression} that is the interval of time you want to return. See Settings section for values.</td>
</tr>
<tr>
<td>\text{date}</td>
<td>Required. Date expression you want to evaluate.</td>
</tr>
<tr>
<td>\text{firstdayofweek}</td>
<td>Optional. Constant that specifies the day of the week. If not specified, Sunday is assumed. See Settings section for values.</td>
</tr>
<tr>
<td>\text{firstweekofyear}</td>
<td>Optional. Constant that specifies the first week of the year. If not specified, the first week is assumed to be the week in which January 1 occurs. See Settings section for values.</td>
</tr>
</tbody>
</table>

**Settings**

The \text{interval} argument can have the following values:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>yyyy</td>
<td>Year</td>
</tr>
<tr>
<td>q</td>
<td>Quarter</td>
</tr>
<tr>
<td>Argument</td>
<td>Value</td>
</tr>
<tr>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>Weekday</td>
<td>w</td>
</tr>
<tr>
<td>Date</td>
<td>y</td>
</tr>
<tr>
<td>Time</td>
<td>h, n, s</td>
</tr>
</tbody>
</table>

The `firstdayofweek` argument can have the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>vbUseSystem</code></td>
<td>0</td>
<td>Use National Language Support (NLS) API setting.</td>
</tr>
<tr>
<td><code>vbSunday</code></td>
<td>1</td>
<td>Sunday (default)</td>
</tr>
<tr>
<td><code>vbMonday</code></td>
<td>2</td>
<td>Monday</td>
</tr>
<tr>
<td><code>vbTuesday</code></td>
<td>3</td>
<td>Tuesday</td>
</tr>
<tr>
<td><code>vbWednesday</code></td>
<td>4</td>
<td>Wednesday</td>
</tr>
<tr>
<td><code>vbThursday</code></td>
<td>5</td>
<td>Thursday</td>
</tr>
<tr>
<td><code>vbFriday</code></td>
<td>6</td>
<td>Friday</td>
</tr>
<tr>
<td><code>vbSaturday</code></td>
<td>7</td>
<td>Saturday</td>
</tr>
</tbody>
</table>

The `firstweekofyear` argument can have the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>vbUseSystem</code></td>
<td>0</td>
<td>Use National Language Support (NLS) API setting.</td>
</tr>
<tr>
<td><code>vbFirstJan1</code></td>
<td>1</td>
<td>Start with the week in which January 1 occurs (default).</td>
</tr>
<tr>
<td><code>vbFirstFourDays</code></td>
<td>2</td>
<td>Start with the week that has at least four days in the new year.</td>
</tr>
<tr>
<td><code>vbFirstFullWeek</code></td>
<td>3</td>
<td>Start with the first full week of the new year.</td>
</tr>
</tbody>
</table>
Remarks

You can use the **DatePart** function to evaluate a date and return a specific interval of time. For example, you might use **DatePart** to calculate the day of the week or the current hour.

The *firstdayofweek* argument affects calculations that use the "w" and "ww" interval symbols.

If *date* is a date literal, the specified year becomes a permanent part of that date. However, if *date* is enclosed in quotation marks (" "), and you omit the year, the current year is inserted in your code each time the *date* expression is evaluated. This makes it possible to write code that can be used in different years.

This example takes a date and, using the **DatePart** function, displays the quarter of the year in which it occurs.

```vba
Function GetQuarter(TheDate)
    GetQuarter = DatePart("q", TheDate)
End Function
```
DateSerial Function

Description

Returns a Variant of subtype Date for a specified year, month, and day.

Syntax

DateSerial(year, month, day)

The DateSerial function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>year</td>
<td>Number between 100 and 9999, inclusive, or a numeric expression.</td>
</tr>
<tr>
<td>month</td>
<td>Any numeric expression.</td>
</tr>
<tr>
<td>day</td>
<td>Any numeric expression.</td>
</tr>
</tbody>
</table>

Remarks

To specify a date, such as December 31, 1991, the range of numbers for each DateSerial argument should be in the accepted range for the unit; that is, 1–31 for days and 1–12 for months. However, you can also specify relative dates for each argument using any numeric expression that represents some number of days, months, or years before or after a certain date.

The following example uses numeric expressions instead of absolute date
numbers. Here the **DateSerial** function returns a date that is the day before the first day (1 – 1) of two months before August (8 – 2) of 10 years before 1990 (1990 – 10); in other words, May 31, 1980.

```
Dim MyDate1, MyDate2
MyDate1 = DateSerial(1970, 1, 1)        ' Returns January 1, 1970.
MyDate2 = DateSerial(1990 - 10, 8 - 2, 1 - 1)  ' Returns May 31, 1980.
```

For the `year` argument, values between 0 and 99, inclusive, are interpreted as the years 1900–1999. For all other `year` arguments, use a complete four-digit year (for example, 1800).

When any argument exceeds the accepted range for that argument, it increments to the next larger unit as appropriate. For example, if you specify 35 days, it is evaluated as one month and some number of days, depending on where in the year it is applied. However, if any single argument is outside the range -32,768 to 32,767, or if the date specified by the three arguments, either directly or by expression, falls outside the acceptable range of dates, an error occurs.
DateValue Function

See Also

Description

Returns a Variant of subtype Date.

Syntax

DateValue(date)

The date argument is normally a string expression representing a date from January 1, 100 through December 31, 9999. However, date can also be any expression that can represent a date, a time, or both a date and time, in that range.

Remarks

If the date argument includes time information, DateValue doesn't return it. However, if date includes invalid time information (such as "89:98"), an error occurs.

If date is a string that includes only numbers separated by valid date separators, DateValue recognizes the order for month, day, and year according to the short date format you specified for your system. DateValue also recognizes unambiguous dates that contain month names, either in long or abbreviated form. For example, in addition to recognizing 12/30/1991 and 12/30/91, DateValue also recognizes December 30, 1991 and Dec 30, 1991.

If the year part of date is omitted, DateValue uses the current year from your computer's system date.

The following example uses the DateValue function to convert a string to a date. You can also use date literals to directly assign a date to a Variant variable, for example, MyDate = #9/11/63#.

Dim MyDate
MyDate = DateValue("September 11, 1963")  ' Return a date.
Day Function

Description

Returns a whole number between 1 and 31, inclusive, representing the day of the month.

Syntax

Day(date)

The date argument is any expression that can represent a date. If date contains Null, Null is returned.

The following example uses the Day function to obtain the day of the month from a specified date:

Dim MyDay
Description

Returns or sets a descriptive string associated with an error.

Syntax

`object.Description [= stringexpression]`

The Description property syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Always the Err object.</td>
</tr>
<tr>
<td><code>stringexpression</code></td>
<td>A string expression containing a description of the error.</td>
</tr>
</tbody>
</table>

Remarks

The Description property consists of a short description of the error. Use this property to alert the user to an error that you can't or don't want to handle. When generating a user-defined error, assign a short description of your error to this property. If Description isn't filled in, and the value of Number corresponds to a VBScript run-time error, the descriptive string associated with the error is returned.

On Error Resume Next

Err.Raise 6 ' Raise an overflow error.
MsgBox ("Error # " & CStr(Err.Number) & " " & Err.Description)
Err.Clear ' Clear the error.
See Also

Description

Declares variables and allocates storage space.

Syntax

Dim varname([subscripts])[, varname([subscripts])] . . .

The Dim statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>varname</td>
<td>Name of the variable; follows standard variable naming conventions.</td>
</tr>
<tr>
<td>subscripts</td>
<td>Dimensions of an array variable; up to 60 multiple dimensions may be declared. The subscripts argument uses the following syntax:</td>
</tr>
<tr>
<td></td>
<td>upperbound [,upperbound] . . .</td>
</tr>
</tbody>
</table>

The lower bound of an array is always zero.

Remarks

Variables declared with Dim at the script level are available to all procedures within the script. At the procedure level, variables are available only within the procedure.

You can also use the Dim statement with empty parentheses to
declare a dynamic array. After declaring a dynamic array, use the **ReDim** statement within a procedure to define the number of dimensions and elements in the array. If you try to redeclare a dimension for an array variable whose size was explicitly specified in a **Dim** statement, an error occurs.

---

**Tip** When you use the **Dim** statement in a procedure, you generally put the **Dim** statement at the beginning of the procedure.

---

The following examples illustrate the use of the **Dim** statement:

```plaintext
Dim Names(9)    ' Declare an array with 10 elements.
Dim Names()     ' Declare a dynamic array.
Dim MyVar, MyNum ' Declare two variables.
```
See Also

Description

Divides two numbers and returns a floating-point result.

Syntax

\[ result = \text{number1}/\text{number2} \]

The / operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>number1</td>
<td>Any numeric expression.</td>
</tr>
<tr>
<td>number2</td>
<td>Any numeric expression.</td>
</tr>
</tbody>
</table>

Remarks

If one or both expressions are Null expressions, result is Null. Any expression that is Empty is treated as 0.
Do...Loop Statement

Description

Repeats a block of statements while a condition is True or until a condition becomes True.

Syntax

```
Do [{While | Until} condition]
    [statements]
    [Exit Do]
    [statements]
Loop [{While | Until} condition]
```

Or, you can use this syntax:

```
Do
    [statements]
    [Exit Do]
    [statements]
Loop [{While | Until} condition]
```

The Do...Loop statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>condition</td>
<td>Numeric or string expression that is True or False. If condition is Null, condition is False.</td>
</tr>
<tr>
<td>statements</td>
<td>One or more statements that are repeated while or until condition is True.</td>
</tr>
</tbody>
</table>

Remarks

The Exit Do can only be used within a Do...Loop control structure to
provide an alternate way to exit a Do...Loop. Any number of Exit Do statements may be placed anywhere in the Do...Loop. Often used with the evaluation of some condition (for example, If...Then), Exit Do transfers control to the statement immediately following the Loop.

When used within nested Do...Loop statements, Exit Do transfers control to the loop that is nested one level above the loop where it occurs.

The following examples illustrate use of the Do...Loop statement:

```vbnet
Do Until DefResp = vbNo
    MyNum = Int (6 * Rnd + 1) ' Generate a random integer between 1 and 6.
    DefResp = MsgBox (MyNum & " Do you want another number?")
Loop

Dim Check, Counter
Check = True: Counter = 0 ' Initialize variables.
Do ' Outer loop.
    Do While Counter < 20 ' Inner loop.
        Counter = Counter + 1 ' Increment Counter.
        If Counter = 10 Then ' If condition is True...
            Check = False ' set value of flag to False.
            Exit Do ' Exit inner loop.
        End If
    Loop
Loop Until Check = False ' Exit outer loop immediately.
```
Empty

**See Also**

**Description**

The **Empty** keyword is used to indicate an uninitialized variable value. This is not the same thing as **Null**.
Eqv Operator

See Also

Description

Performs a logical equivalence on two expressions.

Syntax

\[ \text{result} = \text{expression1} \text{ Eqv expression2} \]

The Eqv operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>expression1</td>
<td>Any expression</td>
</tr>
<tr>
<td>expression2</td>
<td>Any expression</td>
</tr>
</tbody>
</table>

Remarks

If either expression is Null, result is also Null. When neither expression is Null, result is determined according to the following table:

<table>
<thead>
<tr>
<th>If expression1 is</th>
<th>And expression2 is</th>
<th>The result is</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>True</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>False</td>
<td>True</td>
<td>False</td>
</tr>
<tr>
<td>False</td>
<td>False</td>
<td>True</td>
</tr>
</tbody>
</table>

The Eqv operator performs a bitwise comparison of identically positioned bits in two numeric expressions and sets the corresponding bit in result according to the following table:
<table>
<thead>
<tr>
<th>If bit in expression1 is</th>
<th>0</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Erase Statement

See Also

Description

Reinitializes the elements of fixed-size arrays and deallocates dynamic-array storage space.

Syntax

Erase array

The array argument is the name of the array variable to be erased.

Remarks

It is important to know whether an array is fixed-size (ordinary) or dynamic because Erase behaves differently depending on the type of array. Erase recovers no memory for fixed-size arrays. Erase sets the elements of a fixed array as follows:

<table>
<thead>
<tr>
<th>Type of array</th>
<th>Effect of Erase on fixed-array elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed numeric array</td>
<td>Sets each element to zero.</td>
</tr>
<tr>
<td>Fixed string array</td>
<td>Sets each element to zero-length (&quot;&quot;).</td>
</tr>
<tr>
<td>Array of objects</td>
<td>Sets each element to the special value Nothing.</td>
</tr>
</tbody>
</table>

Erase frees the memory used by dynamic arrays. Before your program can refer to the dynamic array again, it must redefine the array variable's dimensions using a ReDim statement.

The following example illustrates the use of the Erase statement:

Dim NumArray(9)
Dim DynamicArray()
ReDim DynamicArray(9) ' Allocate storage space.
Erase NumArray ' Each element is reinitialized.
Erase DynamicArray ' Free memory used by array.
Err Object

Description

Contains information about run-time errors. Accepts the Raise and Clear methods for generating and clearing run-time errors.

Remarks

The Err object is an intrinsic object with global scope — there is no need to create an instance of it in your code. The properties of the Err object are set by the generator of an error — Visual Basic, an Automation object, or the VBScript programmer.

The default property of the Err object is Number. Err.Number contains an integer and can be used by an Automation object to return an SCODE.

When a run-time error occurs, the properties of the Err object are filled with information that uniquely identifies the error and information that can be used to handle it. To generate a run-time error in your code, use the Raise method.

The Err object's properties are reset to zero or zero-length strings (""") after an On Error Resume Next statement. The Clear method can be used to explicitly reset Err.

The following example illustrates use of the Err object:

On Error Resume Next
Err.Raise 6 ' Raise an overflow error.
MsgBox ("Error # " & CStr(Err.Number) & " " & Err.Description)
Err.Clear ' Clear the error.
**Eval Function**

**See Also**

**Description**

Evaluates an expression and returns the result.

**Syntax**

```
[result = ] Eval(expression)
```

The `Eval` function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>result</code></td>
<td>Optional. Variable to which return value assignment is made. If <code>result</code> is not specified, consider using the <code>Execute</code> statement instead.</td>
</tr>
<tr>
<td><code>expression</code></td>
<td>Required. String containing any legal VBScript expression.</td>
</tr>
</tbody>
</table>

**Remarks**

In VBScript, `x = y` can be interpreted two ways. The first is as an assignment statement, where the value of `y` is assigned to `x`. The second interpretation is as an expression that tests if `x` and `y` have the same value. If they do, `result` is True; if they are not, `result` is False. The `Eval` method always uses the second interpretation, whereas the `Execute` statement always uses the first.

**Note** In Microsoft® JScript, no confusion exists between assignment and comparison, because the assignment operator (=) is different from the comparison operator (==).

The following example illustrates the use of the `Eval` function:
Sub GuessANumber
    Dim Guess, RndNum
    RndNum = Int((100) * Rnd(1) + 1)
    Guess = CInt(InputBox("Enter your guess:","",0))
    Do
        If Eval("Guess = RndNum") Then
            MsgBox "Congratulations! You guessed it!"
            Exit Sub
        Else
            Guess = CInt(InputBox("Sorry! Try again.","",0))
        End If
    Loop Until Guess = 0
End Sub
Execute Method

Description

Executes a regular expression search against a specified string.

Syntax

`object.Execute(string)`

The **Execute** method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <code>RegExp</code> object.</td>
</tr>
<tr>
<td><code>string</code></td>
<td>Required. The text string upon which the regular expression is executed.</td>
</tr>
</tbody>
</table>

Remarks

The actual pattern for the regular expression search is set using the **Pattern** property of the `RegExp` object.

The **Execute** method returns a **Matches** collection containing a **Match** object for each match found in `string`. **Execute** returns an empty **Matches** collection if no match is found.

The following code illustrates the use of the **Execute** method:

```
Function RegExpTest(patrn, strng)
```
Dim regEx, Match, Matches  ' Create variable.
Set regEx = New RegExp  ' Create a regular expression.
regEx.Pattern = patrn  ' Set pattern.
regEx.IgnoreCase = True  ' Set case insensitivity.
regEx.Global = True  ' Set global applicability.
Set Matches = regEx.Execute(strng)  ' Execute search.
For Each Match in Matches  ' Iterate Matches collection.
    RetStr = RetStr & "Match found at position 
    RetStr = RetStr & Match.FirstIndex & ". Match Value is 
    RetStr = RetStr & Match.Value & ":" & vbCRLF
Next
RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
Description

Executes one or more specified statements.

Syntax

**Execute statement**

The required *statement* argument is a string expression containing one or more statements for execution. Include multiple statements in the *statement* argument, using colons or embedded line breaks to separate them.

Remarks

In VBScript, \( x = y \) can be interpreted two ways. The first is as an assignment statement, where the value of \( y \) is assigned to \( x \). The second interpretation is as an expression that tests if \( x \) and \( y \) have the same value. If they do, *result* is *True*; if they are not, *result* is *False*. The **Execute** statement always uses the first interpretation, whereas the **Eval** method always uses the second.

**Note** In Microsoft® JScript, no confusion exists between assignment and comparison, because the assignment operator (=) is different from the comparison operator (==).

The context in which the **Execute** statement is invoked determines what objects and variables are available to the code being run. In-scope objects and variables are available to code running in an **Execute** statement. However, it is important to understand that if you execute code that creates a **procedure**, that procedure does not inherit the **scope** of the procedure in which it occurred.

Like any procedure, the new procedure's scope is global, and it inherits everything in the global scope. Unlike any other procedure, its context is not global scope, so it can only be executed in the context of the procedure where the **Execute** statement occurred. However, if the same **Execute** statement is invoked outside of a procedure (i.e., in global scope), not only does it inherit everything in global scope, but it can also be called from anywhere, since its context is global. The following example illustrates this behavior:
Dim X  ' Declare X in global scope.
X = "Global"  ' Assign global X a value.
Sub Proc1  ' Declare procedure.
  Dim X  ' Declare X in local scope.
  X = "Local"  ' Assign local X a value.
  ' The Execute statement here creates a
  ' procedure that, when invoked, prints X.
  ' It print the global X because Proc2
  ' inherits everything in global scope.
  Execute "Sub Proc2: Print X: End Sub"
Print Eval("X")  ' Print local X.
Proc2  ' Invoke Proc2 in Proc1's scope.
End Sub
Proc2  ' This line causes an error since
  ' Proc2 is unavailable outside Proc1.
Proc1  ' Invoke Proc1.
  Execute "Sub Proc2: Print X: End Sub"
Proc2  ' This invocation succeeds because Proc2
  ' is now available globally.

The following example shows how the Execute statement can be rewritten
so you don't have to enclose the entire procedure in the quotation marks:

S = "Sub Proc2" & vbCrLf
S = S & " Print X" & vbCrLf
S = S & "End Sub"
Execute S
## Exit Statement

### Description

Exits a block of **Do...Loop, For...Next, Function**, or **Sub** code.

### Syntax

- **Exit Do**
- **Exit For**
- **Exit Function**
- **Exit Property**
- **Exit Sub**

The **Exit** statement syntax has these forms:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exit Do</strong></td>
<td>Provides a way to exit a <strong>Do...Loop</strong> statement. It can be used only inside a <strong>Do...Loop</strong> statement. <strong>Exit Do</strong> transfers control to the statement following the <strong>Loop</strong> statement. When used within nested <strong>Do...Loop</strong> statements, <strong>Exit Do</strong> transfers control to the loop that is one nested level above the loop where it occurs.</td>
</tr>
<tr>
<td><strong>Exit For</strong></td>
<td>Provides a way to exit a <strong>For</strong> loop. It can be used only in a <strong>For...Next</strong> or <strong>For Each...Next</strong> loop. <strong>Exit For</strong> transfers control to the statement following the <strong>Next</strong> statement. When used within nested <strong>For</strong> loops, <strong>Exit For</strong> transfers control to the loop that is one nested level above the loop where it occurs.</td>
</tr>
<tr>
<td></td>
<td>Immediately exits the <strong>Function</strong> procedure in which</td>
</tr>
</tbody>
</table>
Exit Function | It appears. Execution continues with the statement following the statement that called the Function.

Exit Property | Immediately exits the Property procedure in which it appears. Execution continues with the statement following the statement that called the Property procedure.

Exit Sub | Immediately exits the Sub procedure in which it appears. Execution continues with the statement following the statement that called the Sub.

The following example illustrates the use of the Exit statement:

Sub RandomLoop
    Dim I, MyNum
    Do ' Set up infinite loop.
        For I = 1 To 1000 ' Loop 1000 times.
            MyNum = Int(Rnd * 100) ' Generate random num
        Next
    Select Case MyNum ' Evaluate random num
        Case 17: MsgBox "Case 17"
            Exit For ' If 17, exit For...Next.
        Case 29: MsgBox "Case 29"
            Exit Do ' If 29, exit Do...Loop.
        Case 54: MsgBox "Case 54"
            Exit Sub ' If 54, exit Sub procedure.
    End Select
End Sub
Exp Function

Description

Returns $e$ (the base of natural logarithms) raised to a power.

Syntax

```
Exp(number)
```

The `number` argument can be any valid numeric expression.

Remarks

If the value of `number` exceeds 709.782712893, an error occurs. The constant $e$ is approximately 2.718282.

---

**Note** The *Exp* function complements the action of the *Log* function and is sometimes referred to as the antilogarithm.

---

The following example uses the *Exp* function to return $e$ raised to a power:

```
Dim MyAngle, MyHSin ' Define angle in radians.
MyAngle = 1.3 ' Calculate hyperbolic sine.
MyHSin = (Exp(MyAngle) - Exp(-1 * MyAngle))
```
**Operator**

**See Also**

**Description**

Raises a number to the power of an exponent.

**Syntax**

\[ \text{result} = \text{number}^{\text{exponent}} \]

The ^ operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>number</td>
<td>Any numeric expression.</td>
</tr>
<tr>
<td>exponent</td>
<td>Any numeric expression.</td>
</tr>
</tbody>
</table>

**Remarks**

Number can be negative only if exponent is an integer value. When more than one exponentiation is performed in a single expression, the ^ operator is evaluated as it is encountered from left to right.

If either number or exponent is a Null expression, result is also Null.
See Also

Description

The **False** keyword has a value equal to 0.
Filter Function

See Also

Description

Returns a zero-based array containing a subset of a string array based on a specified filter criteria.

Syntax

**Filter**(InputStrings, Value[, Include[, Compare]])

The Filter function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>InputStrings</strong></td>
<td>Required. One-dimensional array of strings to be searched.</td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td>Required. String to search for.</td>
</tr>
<tr>
<td><strong>Include</strong></td>
<td>Optional. Boolean value indicating whether to return substrings that include or exclude Value. If Include is True, Filter returns the subset of the array that contains Value as a substring. If Include is False, Filter returns the subset of the array that does not contain Value as a substring.</td>
</tr>
<tr>
<td><strong>Compare</strong></td>
<td>Optional. Numeric value indicating the kind of string comparison to use. See Settings section for values.</td>
</tr>
</tbody>
</table>

Settings

The Compare argument can have the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Remarks

If no matches of Value are found within InputStrings, **Filter** returns an empty array. An error occurs if InputStrings is **Null** or is not a one-dimensional array.

The array returned by the **Filter** function contains only enough elements to contain the number of matched items.

The following example uses the **Filter** function to return the array containing the search criteria "Mon":

```vb
Dim MyIndex
Dim MyArray (3)
MyArray(0) = "Sunday"
MyArray(1) = "Monday"
MyArray(2) = "Tuesday"
MyIndex = Filter(MyArray, "Mon") ' MyIndex(0) contains "Monday".
```
FirstIndex Property

Description

Returns the position in a search string where a match occurs.

Syntax

`object.FirstIndex`

The `object` argument is always a `Match` object.

Remarks

The `FirstIndex` property uses a zero-based offset from the beginning of the search string. In other words, the first character in the string is identified as character zero (0). The following code illustrates the use of the `FirstIndex` property:

```vbscript
Function RegExpTest(patrn, strng)
    Dim regEx, Match, Matches  ' Create variable.
    Set regEx = New RegExp  ' Create regular expression
    regEx.Pattern = patrn  ' Set pattern.
    regEx.IgnoreCase = True  ' Set case insensitivity.
    regEx.Global = True  ' Set global applicability.
    Set Matches = regEx.Execute(strng)  ' Execute search.
    For Each Match in Matches  ' Iterate Matches collection.
        RetStr = RetStr & "Match " & I & " found at position " & Match.FirstIndex & ". Match Value is " & Match.Value & "." & vbCRLF
    Next
End Function
```
Next
RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
**Int, Fix**

**Functions**

**See Also**

---

**Description**

Returns the integer portion of a number.

**Syntax**

- `Int(number)`
- `Fix(number)`

The `number` argument can be any valid numeric expression. If `number` contains `Null`, `Null` is returned.

**Remarks**

Both `Int` and `Fix` remove the fractional part of `number` and return the resulting integer value.

The difference between `Int` and `Fix` is that if `number` is negative, `Int` returns the first negative integer less than or equal to `number`, whereas `Fix` returns the first negative integer greater than or equal to `number`. For example, `Int` converts -8.4 to -9, and `Fix` converts -8.4 to -8.

`Fix(number)` is equivalent to:

```
Sgn(number) * Int(Abs(number))
```

The following examples illustrate how the `Int` and `Fix` functions return integer portions of numbers:

- `MyNumber = Int(99.8)`  ' Returns 99.
- `MyNumber = Fix(99.2)`  ' Returns 99.
- `MyNumber = Int(-99.8)` ' Returns -100.
MyNumber = \texttt{Fix}(-99.8) \quad \text{' Returns } -99. \\
MyNumber = \texttt{Int}(-99.2) \quad \text{' Returns } -100. \\
MyNumber = \texttt{Fix}(-99.2) \quad \text{' Returns } -99.
**For...Next Statement**

**Description**

Repeats a group of statements a specified number of times.

**Syntax**

```vbnet
For counter = start To end [Step step]
    [statements]
    [Exit For]
    [statements]
Next
```

The **For...Next** statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>counter</code></td>
<td>Numeric variable used as a loop counter. The variable can't be an <code>array</code> element or an element of a user-defined type.</td>
</tr>
<tr>
<td><code>start</code></td>
<td>Initial value of <code>counter</code>.</td>
</tr>
<tr>
<td><code>end</code></td>
<td>Final value of <code>counter</code>.</td>
</tr>
<tr>
<td><code>step</code></td>
<td>Amount <code>counter</code> is changed each time through the loop. If not specified, <code>step</code> defaults to one.</td>
</tr>
<tr>
<td><code>statements</code></td>
<td>One or more statements between <strong>For</strong> and <strong>Next</strong> that are executed the specified number of times.</td>
</tr>
</tbody>
</table>

**Remarks**

The `step` argument can be either positive or negative. The value of the `step` argument determines loop processing as follows:
<table>
<thead>
<tr>
<th>Value</th>
<th>Loop executes if</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive or 0</td>
<td>(counter &lt;= end)</td>
</tr>
<tr>
<td>Negative</td>
<td>(counter &gt;= end)</td>
</tr>
</tbody>
</table>

Once the loop starts and all statements in the loop have executed, \(step\) is added to \(counter\). At this point, either the statements in the loop execute again (based on the same test that caused the loop to execute initially), or the loop is exited and execution continues with the statement following the \textbf{Next} statement.

---

**Tip** Changing the value of \(counter\) while inside a loop can make it more difficult to read and debug your code.

---

\textbf{Exit For} can only be used within a \textbf{For Each...Next} or \textbf{For...Next} control structure to provide an alternate way to exit. Any number of \textbf{Exit For} statements may be placed anywhere in the loop. \textbf{Exit For} is often used with the evaluation of some condition (for example, \textbf{If...Then}), and transfers control to the statement immediately following \textbf{Next}.

You can nest \textbf{For...Next} loops by placing one \textbf{For...Next} loop within another. Give each loop a unique variable name as its \textbf{counter}. The following construction is correct:

\begin{verbatim}
For I = 1 To 10
  For J = 1 To 10
    For K = 1 To 10
      ...  
    Next
  Next
Next
\end{verbatim}
For Each...Next Statement

See Also

Description

Repeats a group of statements for each element in an array or collection.

Syntax

```
For Each element In group
    [statements]
    [Exit For]
    [statements]
Next [element]
```

The For Each...Next statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>element</td>
<td>Variable used to iterate through the elements of the collection or array.</td>
</tr>
<tr>
<td></td>
<td>For collections, element can only be a Variant variable, a generic Object</td>
</tr>
<tr>
<td></td>
<td>variable, or any specific Automation object variable. For arrays, element</td>
</tr>
<tr>
<td></td>
<td>can only be a Variant variable.</td>
</tr>
<tr>
<td>group</td>
<td>Name of an object collection or array.</td>
</tr>
<tr>
<td>statements</td>
<td>One or more statements that are executed on each item in group.</td>
</tr>
</tbody>
</table>

Remarks

The For Each block is entered if there is at least one element in group.
Once the loop has been entered, all the statements in the loop are executed for the first element in *group*. As long as there are more elements in *group*, the statements in the loop continue to execute for each element. When there are no more elements in *group*, the loop is exited and execution continues with the statement following the *Next* statement.

The *Exit For* can only be used within a *For Each...Next* or *For...Next* control structure to provide an alternate way to exit. Any number of *Exit For* statements may be placed anywhere in the loop. The *Exit For* is often used with the evaluation of some condition (for example, *If...Then*), and transfers control to the statement immediately following *Next*.

You can nest *For Each...Next* loops by placing one *For Each...Next* loop within another. However, each loop element must be unique.

**Note** If you omit *element* in a *Next* statement, execution continues as if you had included it. If a *Next* statement is encountered before its corresponding *For* statement, an error occurs.

The following example illustrates use of the *For Each...Next* statement:

```vba
Function ShowFolderList(folderspec)
    Dim fso, f, f1, fc, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(folderspec)
    Set fc = f.Files
    For Each f1 in fc
        s = s & f1.name
        s = s & "<BR>"
    Next
    ShowFolderList = s
End Function
```
FormatCurrency Function

See Also

Description

Returns an expression formatted as a currency value using the currency symbol defined in the system control panel.

Syntax

FormatCurrency(Expression[, NumDigitsAfterDecimal [,IncludeLeadingDigit [,UseParensForNegativeNumbers [,GroupDigits]]]])

The FormatCurrency function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expression</td>
<td>Required. Expression to be formatted.</td>
</tr>
<tr>
<td>NumDigitsAfterDecimal</td>
<td>Optional. Numeric value indicating how many places to the right of the decimal are displayed. Default value is -1, which indicates that the computer's regional settings are used.</td>
</tr>
<tr>
<td>IncludeLeadingDigit</td>
<td>Optional. Tristate constant that indicates whether or not a leading zero is displayed for fractional values. See Settings section for values.</td>
</tr>
<tr>
<td>UseParensForNegativeNumbers</td>
<td>Optional. Tristate constant that indicates whether or not to use parentheses for negative numbers.</td>
</tr>
<tr>
<td>GroupDigits</td>
<td>Optional. Tristate constant that indicates whether or not to use grouping for thousands.</td>
</tr>
</tbody>
</table>
**Settings**

The `IncludeLeadingDigit`, `UseParensForNegativeNumbers`, and `GroupDigits` arguments have the following settings:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TristateTrue</td>
<td>-1</td>
<td>True</td>
</tr>
<tr>
<td>TristateFalse</td>
<td>0</td>
<td>False</td>
</tr>
<tr>
<td>TristateUseDefault</td>
<td>-2</td>
<td>Use the setting from the computer's regional settings.</td>
</tr>
</tbody>
</table>

**Remarks**

When one or more optional arguments are omitted, values for omitted arguments are provided by the computer's regional settings. The position of the currency symbol relative to the currency value is determined by the system's regional settings.

---

**Note**  All settings information comes from the Regional Settings Currency tab, except leading zero which comes from the Number tab.
The following example uses the **FormatCurrency** function to format the expression as a currency and assign it to MyCurrency:

```
Dim MyCurrency
MyCurrency = FormatCurrency(1000) ' MyCurrency
```
FormatDateTime Function

Description

Returns an expression formatted as a date or time.

Syntax

FormatDateTime(Date[, NamedFormat])

The FormatDateTime function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Required. Date expression to be formatted.</td>
</tr>
<tr>
<td>NamedFormat</td>
<td>Optional. Numeric value that indicates the date/time format used. If omitted, vbGeneralDate is used.</td>
</tr>
</tbody>
</table>

Settings

The NamedFormat argument has the following settings:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbGeneralDate</td>
<td>0</td>
<td>Display a date and/or time. If there is a date part, display it as a short date. If there is a time part, display it as a long time. If present, both parts are displayed.</td>
</tr>
<tr>
<td>vbLongDate</td>
<td>1</td>
<td>Display a date using the long date format specified in your computer's regional settings.</td>
</tr>
</tbody>
</table>

Display a date using the short date
<table>
<thead>
<tr>
<th>vbShortDate</th>
<th>2</th>
<th>format specified in your computer's regional settings.</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbLongTime</td>
<td>3</td>
<td>Display a time using the time format specified in your computer's regional settings.</td>
</tr>
<tr>
<td>vbShortTime</td>
<td>4</td>
<td>Display a time using the 24-hour format (hh:mm).</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the **FormatDateTime** function to format the expression as a long date and assign it to MyDateTime:

```vbscript
Function GetCurrentDate
    ' FormatDateTime formats Date in long date.
    GetCurrentDate = FormatDateTime(Date, 1)
End Function
```
FormatNumber Function

Description

Returns an expression formatted as a number.

Syntax

```
FormatNumber(Expression [,NumDigitsAfterDecimal [,IncludeLeadingDigit [,UseParensForNegativeNumbers [,GroupDigits]]]])
```

The FormatNumber function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expression</td>
<td>Required. Expression to be formatted.</td>
</tr>
<tr>
<td>NumDigitsAfterDecimal</td>
<td>Optional. Numeric value indicating how many places to the right of the decimal are displayed. Default value is -1, which indicates that the computer's regional settings are used.</td>
</tr>
<tr>
<td>IncludeLeadingDigit</td>
<td>Optional. Tristate constant that indicates whether or not a leading zero is displayed for fractional values. See Settings section for values.</td>
</tr>
<tr>
<td>UseParensForNegativeNumbers</td>
<td>Optional. Tristate constant that indicates whether or not to place negative values within</td>
</tr>
</tbody>
</table>
parentheses. See Settings section for values.

Optional. Tristate constant that indicates whether or not numbers are grouped using the group delimiter specified in the control panel. See Settings section for values.

**GroupDigits**

**Settings**

The *IncludeLeadingDigit*, *UseParensForNegativeNumbers*, and *GroupDigits* arguments have the following settings:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TristateTrue</td>
<td>-1</td>
<td>True</td>
</tr>
<tr>
<td>TristateFalse</td>
<td>0</td>
<td>False</td>
</tr>
<tr>
<td>TristateUseDefault</td>
<td>-2</td>
<td>Use the setting from the computer's regional settings.</td>
</tr>
</tbody>
</table>

**Remarks**

When one or more of the optional arguments are omitted, the values for omitted arguments are provided by the computer's regional settings.

**Note** All settings information comes from the Regional Settings Number tab.

The following example uses the **FormatNumber** function to format a number to have four decimal places:

```plaintext
Function FormatNumberDemo
```
Dim MyAngle, MySecant, MyNumber
MyAngle = 1.3 ' Define angle in radians
MySecant = 1 / Cos(MyAngle) ' Calculate secant
FormatNumberDemo = FormatNumber(MySecan
End Function
FormatPercent Function

Description

Returns an expression formatted as a percentage (multiplied by 100) with a trailing % character.

Syntax

FormatPercent(Expression[,NumDigitsAfterDecimal [,IncludeLeadingDigit [,UseParensForNegativeNumbers [,GroupDigits]]]])

The FormatPercent function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expression</td>
<td>Required. Expression to be formatted.</td>
</tr>
<tr>
<td>NumDigitsAfterDecimal</td>
<td>Optional. Numeric value indicating how many places to the right of the decimal are displayed. Default value is -1, which indicates that the computer's regional settings are used.</td>
</tr>
<tr>
<td>IncludeLeadingDigit</td>
<td>Optional. Tristate constant that indicates whether or not a leading zero is displayed for fractional values. See Settings section for values.</td>
</tr>
<tr>
<td>UseParensForNegativeNumbers</td>
<td>Optional. Tristate constant that indicates whether or not to use parentheses for negative numbers.</td>
</tr>
<tr>
<td>GroupDigits</td>
<td>Optional. Tristate constant that indicates whether or not to group digits.</td>
</tr>
</tbody>
</table>
### Settings

The `IncludeLeadingDigit`, `UseParensForNegativeNumbers`, and `GroupDigits` arguments have the following settings:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TristateTrue</td>
<td>-1</td>
<td>True</td>
</tr>
<tr>
<td>TristateFalse</td>
<td>0</td>
<td>False</td>
</tr>
<tr>
<td>TristateUseDefault</td>
<td>-2</td>
<td>Use the setting from the computer's regional settings.</td>
</tr>
</tbody>
</table>

### Remarks

When one or more optional arguments are omitted, the values for the omitted arguments are provided by the computer's regional settings.

**Note** All settings information comes from the Regional Settings Number tab.

The following example uses the **FormatPercent** function to format an expression as a percent:
Dim MyPercent
MyPercent = FormatPercent(2/32) ' MyPercent contains 6.25%
Function Statement

See Also

Description

Declares the name, arguments, and code that form the body of a Function procedure.

Syntax

```
[Public [Default] | Private] Function name [(arglist)]
 [statements]
 [name = expression]
 [Exit Function]
 [statements]
 [name = expression]
End Function
```

The Function statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Indicates that the Function procedure is accessible to all other procedures in all scripts.</td>
</tr>
<tr>
<td>Default</td>
<td>Used only with the Public keyword in a Class block to indicate that the Function procedure is the default method for the class. An error occurs if more than one Default procedure is specified in a class.</td>
</tr>
<tr>
<td>Private</td>
<td>Indicates that the Function procedure is accessible only to other procedures in the script where it is declared or if the function is a member of a class, and that the Function procedure is accessible only to other procedures in that class.</td>
</tr>
<tr>
<td>name</td>
<td>Name of the Function; follows standard variable naming conventions.</td>
</tr>
<tr>
<td>arglist</td>
<td>List of variables representing arguments that are passed to the Function procedure when it is called. Multiple variables are separated by commas.</td>
</tr>
<tr>
<td>statements</td>
<td>Any group of statements to be executed within the body of the Function procedure.</td>
</tr>
<tr>
<td>expression</td>
<td>Return value of the Function.</td>
</tr>
</tbody>
</table>

The *arglist* argument has the following syntax and parts:


**[ByVal | ByRef]** varname()[ ]

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ByVal</td>
<td>Indicates that the argument is passed by value.</td>
</tr>
<tr>
<td>ByRef</td>
<td>Indicates that the argument is passed by reference.</td>
</tr>
<tr>
<td>varname</td>
<td>Name of the variable representing the argument; follows standard variable naming conventions.</td>
</tr>
</tbody>
</table>

**Remarks**

If not explicitly specified using either **Public** or **Private**, Function procedures are public by default, that is, they are visible to all other procedures in your script. The value of local variables in a Function is not preserved between calls to the procedure.

You can't define a Function procedure inside any other procedure (e.g. **Sub** or **Property Get**).

The **Exit Function** statement causes an immediate exit from a Function procedure. Program execution continues with the statement that follows the statement that called the Function procedure. Any number of Exit Function statements can appear anywhere in a Function procedure.

Like a **Sub** procedure, a Function procedure is a separate procedure that can take arguments, perform a series of statements, and change the values of its arguments. However, unlike a **Sub** procedure, you can use a Function procedure on the right side of an expression in the same way you use any
intrinsic function, such as `Sqr`, `Cos`, or `Chr`, when you want to use the value returned by the function.

You call a **Function** procedure using the function name, followed by the argument list in parentheses, in an expression. See the **Call** statement for specific information on how to call **Function** procedures.

---

**Caution** Function procedures can be recursive, that is, they can call themselves to perform a given task. However, recursion can lead to stack overflow.

---

To return a value from a function, assign the value to the function name. Any number of such assignments can appear anywhere within the procedure. If no value is assigned to `name`, the procedure returns a default value: a numeric function returns 0 and a string function returns a zero-length string ("""). A function that returns an object reference returns **Nothing** if no object reference is assigned to `name` (using **Set**) within the **Function**.

The following example shows how to assign a return value to a function named `BinarySearch`. In this case, **False** is assigned to the name to indicate that some value was not found.

```vba
Function BinarySearch(...) 
    ... 
    ' Value not found. Return a value of False.
    If lower > upper Then 
        BinarySearch = False
        Exit Function
    End If
    ... 
End Function
```
Variables used in **Function** procedures fall into two categories: those that are explicitly declared within the procedure and those that are not. Variables that are explicitly declared in a procedure (using **Dim** or the equivalent) are always local to the procedure. Variables that are used but not explicitly declared in a procedure are also local unless they are explicitly declared at some higher level outside the procedure.

---

**Caution** A procedure can use a variable that is not explicitly declared in the procedure, but a naming conflict can occur if anything you have defined at the **script level** has the same name. If your procedure refers to an undeclared variable that has the same name as another procedure, **constant**, or variable, it is assumed that your procedure is referring to that script-level name. To avoid this kind of conflict, use an **Option Explicit** statement to force explicit declaration of variables.

---

**Caution** VBScript may rearrange arithmetic expressions to increase internal efficiency. Avoid using a **Function** procedure in an arithmetic expression when the function changes the value of variables in the same expression.

---
GetObject Function

Description

Returns a reference to an Automation object from a file.

Syntax

\textbf{GetObject([pathname] [, class])}

The GetObject function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pathname</td>
<td>Optional; String. Full path and name of the file containing the object to retrieve. If \textit{pathname} is omitted, \textit{class} is required.</td>
</tr>
<tr>
<td>class</td>
<td>Optional; String. Class of the object.</td>
</tr>
</tbody>
</table>

The \textit{class} argument uses the syntax \textit{appname.objectype} and has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{appname}</td>
<td>Required; String. Name of the application providing the object.</td>
</tr>
<tr>
<td>\textit{objectype}</td>
<td>Required; String. Type or class of object to create.</td>
</tr>
</tbody>
</table>

Remarks

Use the \textbf{GetObject} function to access an Automation object from a file and assign the object to an object variable. Use the \textbf{Set} statement to assign the object returned by \textbf{GetObject} to the object variable. For example:
Dim CADObject
Set CADObject = GetObject("C:\CAD\SCHEMA.CAD")

When this code is executed, the application associated with the specified pathname is started and the object in the specified file is activated. If *pathname* is a zero-length string (""), *GetObject* returns a new object instance of the specified type. If the *pathname* argument is omitted, *GetObject* returns a currently active object of the specified type. If no object of the specified type exists, an error occurs.

Some applications allow you to activate part of a file. Add an exclamation point (!) to the end of the file name and follow it with a string that identifies the part of the file you want to activate. For information on how to create this string, see the documentation for the application that created the object.

For example, in a drawing application you might have multiple layers to a drawing stored in a file. You could use the following code to activate a layer within a drawing called SCHEMA.CAD:

```
Set LayerObject = GetObject("C:\CAD\SCHEMA.
```

If you don't specify the object's class, Automation determines the application to start and the object to activate, based on the file name you provide. Some files, however, may support more than one class of object. For example, a drawing might support three different types of objects: an Application object, a Drawing object, and a Toolbar object, all of which are part of the same file. To specify which object in a file you want to activate, use the optional *class* argument. For example:

```
Dim MyObject
Set MyObject = GetObject("C:\DRAWINGS\SAMPLE.DRW", "FIGMENT.DRAWING"
```

In the preceding example, FIGMENT is the name of a drawing application and DRAWING is one of the object types it supports. Once an object is activated, you reference it in code using the object variable you defined. In the preceding example, you access properties and methods of the new...
object using the object variable MyObject. For example:

MyObject.Line 9, 90
MyObject.InsertText 9, 100, "Hello, world."
MyObject.SaveAs "C:\DRAWINGS\SAMPLE.DRW"

Note Use the GetObject function when there is a current instance of the object or if you want to create the object with a file already loaded. If there is no current instance, and you don't want the object started with a file loaded, use the CreateObject function.

If an object has registered itself as a single-instance object, only one instance of the object is created, no matter how many times CreateObject is executed. With a single-instance object, GetObject always returns the same instance when called with the zero-length string ("") syntax, and it causes an error if the pathname argument is omitted.
GetRef

Function

Description

Returns a reference to a procedure that can be bound to an event.

Syntax

Set object.eventname = GetRef(procname)

The GetRef function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Name of the object with which event is associated.</td>
</tr>
<tr>
<td>event</td>
<td>Required. Name of the event to which the function is to be bound.</td>
</tr>
<tr>
<td>procname</td>
<td>Required. String containing the name of the Sub or Function procedure being associated with the event.</td>
</tr>
</tbody>
</table>

Remarks

The GetRef function allows you to connect a VBScript procedure (Function or Sub) to any available event on your DHTML (Dynamic HTML) pages. The DHTML object model provides information about what events are available for its various objects.

In other scripting and programming languages, the functionality provided by GetRef is referred to as a function pointer, that is, it points to the address of a procedure to be executed when the specified event occurs.

The following example illustrates the use of the GetRef function:
<SCRIPT LANGUAGE="VBScript">

Function GetRefTest()
    Dim Splash
    Splash = "GetRefTest Version 1.0" & vbCrLf
    Splash = Splash & Chr(169) & " YourCompany 1999 "
    MsgBox Splash
End Function

Set Window.Onload = GetRef("GetRefTest")

</SCRIPT>
Global Property

Description

Sets or returns a **Boolean** value that indicates if a pattern should match all occurrences in an entire search string or just the first one.

Syntax

\[\text{object.Global} \, [\, = \, \text{True} \, | \, \text{False}]\]

The `object` argument is always a **RegExp** object. The value of the **Global** property is **True** if the search applies to the entire string, **False** if it does not. Default is **False**.

Remarks

The following code illustrates the use of the **Global** property (change the value assigned to **Global** property to see its effect):

```
Function RegExpTest(patrn, strng)
    Dim regEx, Match, Matches
        ' Create variable.
    Set regEx = New RegExp
        ' Create a regular expression.
    regEx.Pattern = patrn
        ' Set pattern.
    regEx.IgnoreCase = True
        ' Set case insensitivity.
    regEx.Global = True
        ' Set global applicability.
    Set Matches = regEx.Execute(strng)
        ' Execute search.
End Function
```
For Each Match in Matches        ' Iterate Matches collection.
    RetStr = RetStr & "Match found at position "
    RetStr = RetStr & Match.FirstIndex & ". Match Value is "
    RetStr = RetStr & Match.Value & ":" & vbCRLF
Next
RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
Hex Function

See Also

Description

Returns a string representing the hexadecimal value of a number.

Syntax

\texttt{Hex(number)}

The \textit{number} argument is any valid expression.

Remarks

If \textit{number} is not already a whole number, it is rounded to the nearest whole number before being evaluated.

<table>
<thead>
<tr>
<th>If \textit{number} is</th>
<th>Hex returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{Null}</td>
<td>Null.</td>
</tr>
<tr>
<td>\texttt{Empty}</td>
<td>Zero (0).</td>
</tr>
<tr>
<td>Any other number</td>
<td>Up to eight hexadecimal characters.</td>
</tr>
</tbody>
</table>

You can represent hexadecimal numbers directly by preceding numbers in the proper range with \&H. For example, \&H10 represents decimal 16 in hexadecimal notation.

The following example uses the \texttt{Hex} function to return the hexadecimal value of a number:

\begin{verbatim}
Dim MyHex
MyHex = Hex(5)   ' Returns 5.
MyHex = Hex(10)  ' Returns A.
MyHex = Hex(459) ' Returns 1CB.
\end{verbatim}
HelpContext Property

Description

Sets or returns a context ID for a topic in a Help File.

Syntax

object.HelpContext [= contextID]

The HelpContext property syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the Err object.</td>
</tr>
<tr>
<td>contextID</td>
<td>Optional. A valid identifier for a Help topic within the Help file.</td>
</tr>
</tbody>
</table>

Remarks

If a Help file is specified in HelpFile, the HelpContext property is used to automatically display the Help topic identified. If both HelpFile and HelpContext are empty, the value of the Number property is checked. If it corresponds to a VBScript run-time error value, then the VBScript Help context ID for the error is used. If the Number property doesn't correspond to a VBScript error, the contents screen for the VBScript Help file is displayed.

The following example illustrates use of the HelpContext property:

```
On Error Resume Next
Dim Msg
Err.Clear
```
Err.Raise 6   ' Generate "Overflow" error.
Err.Helpfile = "yourHelp.hlp"
Err.HelpContext = yourContextID
If Err.Number <> 0 Then
    Msg = "Press F1 or Help to see " & Err.Helpfile & " topic for" & 
    " the following HelpContext: " & Err.HelpContext
End If
HelpFile Property

Description

Sets or returns a fully qualified path to a Help File.

Syntax

object.HelpFile [ = contextID ]

The HelpFile property syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the Err object.</td>
</tr>
<tr>
<td>contextID</td>
<td>Optional. Fully qualified path to the Help file.</td>
</tr>
</tbody>
</table>

Remarks

If a Help file is specified in HelpFile, it is automatically called when the user clicks the Help button (or presses the F1 key) in the error message dialog box. If the HelpContext property contains a valid context ID for the specified file, that topic is automatically displayed. If no HelpFile is specified, the VBScript Help file is displayed.

On Error Resume Next
Dim Msg
Err.Clear
Err.Raise 6  ' Generate "Overflow" error.
Err.Helpfile = "yourHelp.hlp"
Err.HelpContext = yourContextID
If Err.Number <> 0 Then
  Msg = "Press F1 or Help to see " & Err.Helpfile & " topic for" &
"the following HelpContext: " & Err.HelpContext
End If
Hour Function

Description

Returns a whole number between 0 and 23, inclusive, representing the hour of the day.

Syntax

**Hour**(time)

The `time` argument is any expression that can represent a time. If `time` contains `Null`, `Null` is returned.

The following example uses the **Hour** function to obtain the hour from the current time:

```vbnet
Dim MyTime, MyHour
MyTime = Now
MyHour = Hour(MyTime) ' MyHour contains the current hour.
```
If...Then...Else Statement

Description

Conditionally executes a group of statements, depending on the value of an expression.

Syntax

If condition Then statements [Else elsestatements ]

Or, you can use the block form syntax:

If condition Then
    [statements]
    [ElseIf condition-n Then
        [elseifstatements]] . . .
    [Else
        [elsestatements]]
End If

The If...Then...Else statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>condition</td>
<td>One or more of the following two types of expressions:</td>
</tr>
<tr>
<td></td>
<td>A numeric or string expression that evaluates to True or False. If condition is Null, condition is treated as False.</td>
</tr>
<tr>
<td></td>
<td>An expression of the form TypeOf objectname Is objectType. The objectname is any object reference and objectType is any valid object type. The expression is True if objectname is of the object type specified by objectType; otherwise it is False.</td>
</tr>
<tr>
<td>statements</td>
<td>One or more statements separated by colons; executed if condition is True.</td>
</tr>
<tr>
<td>condition-n</td>
<td>Same as condition.</td>
</tr>
<tr>
<td>elseifstatements</td>
<td>One or more statements executed if the associated condition-n is True.</td>
</tr>
<tr>
<td>elsestatements</td>
<td>One or more statements executed if no previous condition or condition-n expression is True.</td>
</tr>
</tbody>
</table>
Remarks

You can use the single-line form (first syntax) for short, simple tests. However, the block form (second syntax) provides more structure and flexibility than the single-line form and is usually easier to read, maintain, and debug.

---

Note  With the single-line syntax, it is possible to have multiple statements executed as the result of an If...Then decision, but they must all be on the same line and separated by colons, as in the following statement:

\[
\text{If } A > 10 \text{ Then } A = A + 1 : B = B + A : C = C + B
\]

---

When executing a block If (second syntax), condition is tested. If condition is True, the statements following Then are executed. If condition is False, each ElseIf (if any) is evaluated in turn. When a True condition is found, the statements following the associated Then are executed. If none of the ElseIf statements are True (or there are no ElseIf clauses), the statements following Else are executed. After executing the statements following Then or Else, execution continues with the statement following End If.

The Else and ElseIf clauses are both optional. You can have as many ElseIf statements as you want in a block If, but none can appear after the Else clause. Block If statements can be nested; that is, contained within one another.

What follows the Then keyword is examined to determine whether or not a statement is a block If. If anything other than a comment appears after Then on the same line, the statement is treated as a single-line If statement.

A block If statement must be the first statement on a line. The block If must end with an End If statement.
IgnoreCase Property

Description

Sets or returns a **Boolean** value that indicates if a pattern search is case-sensitive or not.

Syntax

```
object.IgnoreCase [= True | False ]
```

The *object* argument is always a **RegExp** object. The value of the **IgnoreCase** property is **False** if the search is case-sensitive, **True** if it is not. Default is **False**.

Remarks

The following code illustrates the use of the **IgnoreCase** property (change the value assigned to **IgnoreCase** property to see its effect):

```
Function RegExpTest(patrn, strng)
    Dim regEx, Match, Matches
    ' Create variable.
    Set regEx = New RegExp
    ' Create a regular expression
    regEx.Pattern = patrn
    ' Set pattern.
    regExIgnoreCase = True
    ' Set case insensitivity.
```

regEx.Global = True ' Set global applicability.
Set Matches = regEx.Execute(strng) ' Execute search.
For Each Match in Matches ' Iterate Matches collection.
    RetStr = RetStr & "Match found at position "
    RetStr = RetStr & Match.FirstIndex & ". Match Value is "
    RetStr = RetStr & Match.Value & "" & vbCRLF
Next
RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
Imp Operator

See Also

Description

Performs a logical implication on two expressions.

Syntax

\[ \text{result} = \text{expression1 Imp expression2} \]

The Imp operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>expression1</td>
<td>Any expression</td>
</tr>
<tr>
<td>expression2</td>
<td>Any expression</td>
</tr>
</tbody>
</table>

Remarks

The following table illustrates how result is determined:

<table>
<thead>
<tr>
<th>If expression1 is</th>
<th>And expression2 is</th>
<th>Then result is</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>True</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>True</td>
<td>Null</td>
<td>Null</td>
</tr>
<tr>
<td>False</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>False</td>
<td>False</td>
<td>True</td>
</tr>
<tr>
<td>False</td>
<td>Null</td>
<td>True</td>
</tr>
<tr>
<td>Null</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>Null</td>
<td>False</td>
<td>Null</td>
</tr>
</tbody>
</table>
The **Imp** operator performs a *bitwise comparison* of identically positioned bits in two *numeric expressions* and sets the corresponding bit in *result* according to the following table:

<table>
<thead>
<tr>
<th>If bit in <em>expression1</em> is</th>
<th>And bit in <em>expression2</em> is</th>
<th>Then <em>result</em> is</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Initialize Event

Description

Occurs when an instance of the associated class is created.

Syntax

```
Private Sub Class_Initialize()
  statements
End Sub
```

The statements part consists of zero or more code statements to be run when the class is initialized.

Remarks

The following example illustrates the use of the `Initialize` event:

```
Class TestClass
  Private Sub Class_Initialize ' Setup Initialize event.
    MsgBox("TestClass started")
  End Sub
  Private Sub Class_Terminate ' Setup Terminate event.
    MsgBox("TestClass terminated")
  End Sub
End Class

Set X = New TestClass ' Create an instance of TestClass.
```
Set X = Nothing ' Destroy the instance.
InputBox Function

See Also

Description

Displays a prompt in a dialog box, waits for the user to input text or click a button, and returns the contents of the text box.

Syntax

\textbf{InputBox} (\textit{prompt}[, \textit{title}][, \textit{default}][, \textit{xpos}][, \textit{ypos}][, \textit{helpfile, context}])

The \textit{InputBox} function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{prompt}</td>
<td>String expression displayed as the message in the dialog box. The maximum length of \textit{prompt} is approximately 1024 characters, depending on the width of the characters used. If \textit{prompt} consists of more than one line, you can separate the lines using a carriage return character (\texttt{Chr(13)}), a linefeed character (\texttt{Chr(10)}), or carriage return–linefeed character combination (\texttt{Chr(13) &amp; Chr(10)}) between each line.</td>
</tr>
<tr>
<td>\textit{title}</td>
<td>String expression displayed in the title bar of the dialog box. If you omit \textit{title}, the application name is placed in the title bar.</td>
</tr>
<tr>
<td>\textit{default}</td>
<td>String expression displayed in the text box as the default response if no other input is provided. If you omit \textit{default}, the text box is displayed empty.</td>
</tr>
<tr>
<td>\textit{xpos}</td>
<td>Numeric expression that specifies, in twips, the horizontal distance of the left edge of the dialog box from the left edge of the screen. If \textit{xpos} is omitted, the dialog box is horizontally centered.</td>
</tr>
<tr>
<td>\textit{ypos}</td>
<td>Numeric expression that specifies, in twips, the vertical...</td>
</tr>
</tbody>
</table>
distance of the upper edge of the dialog box from the
top of the screen. If ypos is omitted, the dialog box is
vertically positioned approximately one-third of the way
down the screen.

String expression that identifies the Help file to use to
provide context-sensitive Help for the dialog box. If
helpfile is provided, context must also be provided.

Numeric expression that identifies the Help context
number assigned by the Help author to the appropriate
Help topic. If context is provided, helpfile must also be
provided.

When both helpfile and context are supplied, a Help button is automatically
added to the dialog box.

If the user clicks OK or presses ENTER, the InputBox function returns whatever is in the text box.
If the user clicks Cancel, the function returns a zero-length string ("").

The following example uses the InputBox function to display an input box and assign the string to
the variable Input:

Dim Input
Input = InputBox("Enter your name")
MsgBox ("You entered: " & Input)
InStr Function

Description

Returns the position of the first occurrence of one string within another.

Syntax

InStr([start, ]string1, string2[, compare])

The InStr function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>start</td>
<td>Optional. Numeric expression that sets the starting position for each search. If omitted, search begins at the first character position. If start contains Null, an error occurs. The start argument is required if compare is specified.</td>
</tr>
<tr>
<td>string1</td>
<td>Required. String expression being searched.</td>
</tr>
<tr>
<td>string2</td>
<td>Required. String expression searched for.</td>
</tr>
<tr>
<td>compare</td>
<td>Optional. Numeric value indicating the kind of comparison to use when evaluating substrings. See Settings section for values. If omitted, a binary comparison is performed.</td>
</tr>
</tbody>
</table>

Settings

The compare argument can have the following values:
**Constant** | **Value** | **Description**
--- | --- | ---
vbBinaryCompare | 0 | Perform a binary comparison.
vbTextCompare | 1 | Perform a textual comparison.

**Return Values**

The **InStr** function returns the following values:

<table>
<thead>
<tr>
<th>If</th>
<th>InStr returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>string1 is zero-length</td>
<td>0</td>
</tr>
<tr>
<td>string1 is <strong>Null</strong></td>
<td><strong>Null</strong></td>
</tr>
<tr>
<td>string2 is zero-length</td>
<td>start</td>
</tr>
<tr>
<td>string2 is <strong>Null</strong></td>
<td><strong>Null</strong></td>
</tr>
<tr>
<td>string2 is not found</td>
<td>0</td>
</tr>
<tr>
<td>string2 is found within string1</td>
<td>Position at which match is found</td>
</tr>
<tr>
<td>start &gt; <strong>Len</strong>(string2)</td>
<td>0</td>
</tr>
</tbody>
</table>

**Remarks**

The following examples use **InStr** to search a string:

```v Basic
Dim SearchString, SearchChar, MyPos
SearchString = "XXpXXpXXPXXP"
SearchChar = "P"  ' Search
MyPos = Instr(4, SearchString, SearchChar, 1)  ' position 4
MyPos = Instr(1, SearchString, SearchChar, 0)  ' position 1
MyPos = Instr(SearchString, SearchChar)  '
MyPos = Instr(1, SearchString, "W")
'
(last argument is omitted).
Returns 9.

A binary comparison starting at position 1.
Returns 0 ("W" is not found).

Note The InStrB function is used with byte data contained in a string. Instead of returning the character position of the first occurrence of one string within another, InStrB returns the byte position.
Operator

See Also

Description

Divides two numbers and returns an integer result.

Syntax

\[ result = number1 \div number2 \]

The \ operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>number1</td>
<td>Any numeric expression.</td>
</tr>
<tr>
<td>number2</td>
<td>Any numeric expression.</td>
</tr>
</tbody>
</table>

Remarks

Before division is performed, numeric expressions are rounded to **Byte**, **Integer**, or **Long** subtype expressions.

If any expression is **Null**, result is also **Null**. Any expression that is **Empty** is treated as 0.
Is Operator

See Also

Description

Compares two object reference variables.

Syntax

result = object1 Is object2

The Is operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>object1</td>
<td>Any object name.</td>
</tr>
<tr>
<td>object2</td>
<td>Any object name.</td>
</tr>
</tbody>
</table>

Remarks

If object1 and object2 both refer to the same object, result is True; if they do not, result is False. Two variables can be made to refer to the same object in several ways.

In the following example, A has been set to refer to the same object as B:

Set A = B

The following example makes A and B refer to the same object as C:

Set A = C
Set $B = C$
IsArray Function

See Also

Description

Returns a Boolean value indicating whether a variable is an array.

Syntax

IsArray(varname)

The varname argument can be any variable.

Remarks

IsArray returns True if the variable is an array; otherwise, it returns False. IsArray is especially useful with variants containing arrays.

The following example uses the IsArray function to test whether MyVariable is an array:

Dim MyVariable
Dim MyArray(3)
MyArray(0) = "Sunday"
MyArray(1) = "Monday"
MyArray(2) = "Tuesday"
MyVariable = IsArray(MyArray) ' MyVariable contains "True".
**IsDate**

**Function**

See Also

### Description

Returns a Boolean value indicating whether an expression can be converted to a date.

### Syntax

```
IsDate(expression)
```

The *expression* argument can be any date expression or string expression recognizable as a date or time.

### Remarks

**IsDate** returns **True** if the expression is a date or can be converted to a valid date; otherwise, it returns **False**. In Microsoft Windows, the range of valid dates is January 1, 100 A.D. through December 31, 9999 A.D.; the ranges vary among operating systems.

The following example uses the **IsDate** function to determine whether an expression can be converted to a date:

```vbnet
Dim MyDate, YourDate, NoDate, MyCheck
MyDate = "October 19, 1962": YourDate = #10/19#
MyCheck = IsDate(MyDate) ' Returns True.
MyCheck = IsDate(YourDate) ' Returns True.
MyCheck = IsDate(NoDate) ' Returns False.
```
IsEmpty Function

See Also

Description

Returns a Boolean value indicating whether a variable has been initialized.

Syntax

IsEmpty(expression)

The expression argument can be any expression. However, because IsEmpty is used to determine if individual variables are initialized, the expression argument is most often a single variable name.

Remarks

IsEmpty returns True if the variable is uninitialized, or is explicitly set to Empty; otherwise, it returns False. False is always returned if expression contains more than one variable.

The following example uses the IsEmpty function to determine whether a variable has been initialized:

Dim MyVar, MyCheck
MyCheck = IsEmpty(MyVar)  ' Returns True.
MyVar = Null              ' Assign Null.
MyCheck = IsEmpty(MyVar)  ' Returns False.
MyVar = Empty             ' Assign Empty.
MyCheck = IsEmpty(MyVar)    ' Returns True.
IsNull Function

Description

Returns a Boolean value that indicates whether an expression contains no valid data (Null).

Syntax

IsNull(expression)

The expression argument can be any expression.

Remarks

IsNull returns True if expression is Null, that is, it contains no valid data; otherwise, IsNull returns False. If expression consists of more than one variable, Null in any constituent variable causes True to be returned for the entire expression.

The Null value indicates that the variable contains no valid data. Null is not the same as Empty, which indicates that a variable has not yet been initialized. It is also not the same as a zero-length string (""), which is sometimes referred to as a null string.

Important Use the IsNull function to determine whether an expression contains a Null value. Expressions that you might expect to evaluate to True under some circumstances, such as If Var = Null and If Var <> Null, are always False. This is because any expression containing a Null is itself Null, and therefore, False.

The following example uses the IsNull function to determine whether a variable contains a Null:
Dim MyVar, MyCheck
MyCheck = IsNull(MyVar)  ' Returns False.
MyVar = Null             ' Assign Null.
MyCheck = IsNull(MyVar)  ' Returns True.
MyVar = Empty            ' Assign Empty.
MyCheck = IsNull(MyVar)  ' Returns False.
IsNumeric Function

Description

Returns a Boolean value indicating whether an expression can be evaluated as a number.

Syntax

IsNumeric(expression)

The expression argument can be any expression.

Remarks

IsNumeric returns True if the entire expression is recognized as a number; otherwise, it returns False. IsNumeric returns False if expression is a date expression.

The following example uses the IsNumeric function to determine whether a variable can be evaluated as a number:

Dim MyVar, MyCheck
MyVar = 53 ' Assign a value.
MyCheck = IsNumeric(MyVar) ' Returns True.
MyVar = "459.95" ' Assign a value.
MyCheck = IsNumeric(MyVar) ' Returns True.
MyVar = "45 Help" ' Assign a value.
MyCheck = IsNumeric(MyVar) ' Returns False.
IsObject Function

Description

Returns a Boolean value indicating whether an expression references a valid Automation object.

Syntax

IsObject(expression)

The expression argument can be any expression.

Remarks

IsObject returns True if expression is a variable of Object subtype or a user-defined object; otherwise, it returns False.

The following example uses the IsObject function to determine if an identifier represents an object variable:

```
Dim MyInt, MyCheck, MyObject
Set MyObject = Me
MyCheck = IsObject(MyObject) ' Returns True.
MyCheck = IsObject(MyInt) ' Returns False.
```
Join Function

See Also

Description

Returns a string created by joining a number of substrings contained in an array.

Syntax

`Join(list[, delimiter])`

The **Join** function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>list</td>
<td>Required. One-dimensional array containing substrings to be joined.</td>
</tr>
<tr>
<td>delimiter</td>
<td>Optional. String character used to separate the substrings in the returned string. If omitted, the space character (&quot; &quot;) is used. If <strong>delimiter</strong> is a zero-length string, all items in the list are concatenated with no delimiters.</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the **Join** function to join the substrings of MyArray:

```vbscript
Dim MyString
Dim MyArray(4)
MyArray(0) = "Mr."
```
MyArray(1) = "John 
MyArray(2) = "Doe 
MyArray(3) = "III"
MyString = Join(MyArray) ' MyString contains " 
Function

See Also

Description

Returns the smallest available subscript for the indicated dimension of an array.

Syntax

LBound(arrayname[, dimension])

The LBound function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>arrayname</td>
<td>Name of the array variable; follows standard variable naming conventions.</td>
</tr>
<tr>
<td>dimension</td>
<td>Whole number indicating which dimension's lower bound is returned. Use 1 for the first dimension, 2 for the second, and so on. If dimension is omitted, 1 is assumed.</td>
</tr>
</tbody>
</table>

Remarks

The LBound function is used with the UBound function to determine the size of an array. Use the UBound function to find the upper limit of an array dimension.

The lower bound for any dimension is always 0.
See Also

Description

Returns a string that has been converted to lowercase.

Syntax

**LCase**(string)

The *string* argument is any valid string expression. If *string* contains Null, Null is returned.

Remarks

Only uppercase letters are converted to lowercase; all lowercase letters and nonletter characters remain unchanged.

The following example uses the **LCase** function to convert uppercase letters to lowercase:

```
Dim MyString
Dim LCaseString
MyString = "VBScript"
LCaseString = **LCase**(MyString) ' LCaseString contains "vbscript"
```
Function

See Also

Description

Returns a specified number of characters from the left side of a string.

Syntax

**Left**(string, length)

The *Left* function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>string</td>
<td><em>String expression</em> from which the leftmost characters are returned. If <em>string</em> contains <em>Null</em>, <em>Null</em> is returned.</td>
</tr>
<tr>
<td>length</td>
<td><em>Numeric expression</em> indicating how many characters to return. If 0, a zero-length string(&quot;&quot;&quot;) is returned. If greater than or equal to the number of characters in <em>string</em>, the entire string is returned.</td>
</tr>
</tbody>
</table>

Remarks

To determine the number of characters in *string*, use the *Len* function.

The following example uses the *Left* function to return the first three characters of *MyString*:

```vbscript
Dim MyString, LeftString
MyString = "VBScript"
LeftString = Left(MyString, 3) ' LeftString contains "VBS"
```
Note The **LeftB** function is used with byte data contained in a string. Instead of specifying the number of characters to return, *length* specifies the number of bytes.
Len Function

See Also

Description

Returns the number of characters in a string or the number of bytes required to store a variable.

Syntax

Len(string | varname)

The Len function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>string</td>
<td>Any valid string expression. If string contains Null, Null is returned.</td>
</tr>
<tr>
<td>varname</td>
<td>Any valid variable name. If varname contains Null, Null is returned.</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the Len function to return the number of characters in a string:

Dim MyString
MyString = Len("VBSCRIPT") ' MyString contains 8.

Note The LenB function is used with byte data contained in a string. Instead of returning the number of characters in a string, LenB returns the number of bytes used to represent that string.
Length Property

Description

Returns the length of a match found in a search string.

Syntax

```
object.Length
```

The `object` argument is always a `Match` object.

Remarks

The following code illustrates the use of the `Length` property:

```vbnet
Function RegExpTest(patrn, strng)
    Dim regEx, Match, Matches ' Create variable.
    Set regEx = New RegExp ' Create regular expression.
    regEx.Pattern = patrn ' Set pattern.
    regEx.IgnoreCase = True ' Set case insensitivity.
    regEx.Global = True ' Set global applicability.
    Set Matches = regEx.Execute(strng) ' Execute search.
    For Each Match in Matches ' Iterate Matches collection.
        RetStr = RetStr & "Match " & I & " found at position "
        RetStr = RetStr & Match.FirstIndex & ". Match Length is "
        RetStr = RetStr & Match.Length
        RetStr = RetStr & " characters." & vbCRLF
    Next
End Function
```
Next
    RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
LoadPicture Function

Description

Returns a picture object. Available only on 32-bit platforms.

Syntax

LoadPicture(picturename)

The picturename argument is a string expression that indicates the name of the picture file to be loaded.

Remarks

Graphics formats recognized by LoadPicture include bitmap (.bmp) files, icon (.ico) files, run-length encoded (.rle) files, metafile (.wmf) files, enhanced metafiles (.emf), GIF (.gif) files, and JPEG (.jpg) files.
Function

Description

Returns the natural logarithm of a number.

Syntax

Log(number)

The number argument can be any valid numeric expression greater than 0.

Remarks

The natural logarithm is the logarithm to the base e. The constant e is approximately 2.718282.

You can calculate base-n logarithms for any number x by dividing the natural logarithm of x by the natural logarithm of n as follows:

\[
\text{Log}_n(x) = \frac{\text{Log}(x)}{\text{Log}(n)}
\]

The following example illustrates a custom Function that calculates base-10 logarithms:

Function Log10(X)
    Log10 = Log(X) / Log(10)
End Function
LTrim, RTrim, and Trim Functions

Description

Returns a copy of a string without leading spaces (LTrim), trailing spaces (RTrim), or both leading and trailing spaces (Trim).

Syntax

LTrim(string)
RTrim(string)
Trim(string)

The string argument is any valid string expression. If string contains Null, Null is returned.

Remarks

The following example uses the LTrim, RTrim, and Trim functions to trim leading spaces, trailing spaces, and both leading and trailing spaces, respectively:

Dim MyVar
MyVar = LTrim(" vbscript ") ' MyVar contains "vbscript"
MyVar = RTrim(" vbscript ") ' MyVar contains " vbscript ".
MyVar = Trim(" vbscript ") ' MyVar contains "vbscript".
Description

Provides access to the read-only properties of a regular expression match.

Remarks

A **Match** object can be only created using the **Execute** method of the **RegExp** object, which actually returns a **collection** of **Match** objects. All **Match** object properties are read-only.

When a regular expression is executed, zero or more **Match** objects can result. Each **Match** object provides access to the string found by the regular expression, the length of the string, and an index to where the match was found.

The following code illustrates the use of the **Match** object:

```vbscript
Function RegExpTest(patrn, strng)
  Dim regEx, Match, Matches
  ' Create variable.
  Set regEx = New RegExp
  ' Create regular expression.
  regEx.Pattern = patrn
  ' Set pattern.
  regEx.IgnoreCase = True
  ' Set case insensitivity.
  regEx.Global = True
  ' Set global applicability.
  Set Matches = regEx.Execute(strng)
  ' Execute search.
  For Each Match in Matches
    ' Iterate Matches collection.
End Function
```
RetStr = RetStr & "Match " & I & " found at position "
RetStr = RetStr & Match.FirstIndex & ". Match Value is "
RetStr = RetStr & Match.Value & "." & vbCRLF
Next
RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
**Description**

A `Matches` collection contains individual `Match` objects, and can be only created using the `Execute` method of the `RegExp` object. The `Matches` collection's one property is read-only, as are the individual `Match` object properties.

When a regular expression is executed, zero or more `Match` objects can result. Each `Match` object provides access to the string found by the regular expression, the length of the string, and an index to where the match was found.

The following code illustrates how to obtain a `Matches` collection from a regular expression search and how to iterate the collection:

```vbscript
Function RegExpTest(patrn, strng)
    Dim regEx, Match, Matches
    ' Create variable.
    Set regEx = New RegExp
    ' Create regular expression.
    regEx.Pattern = patrn
    ' Set pattern.
    regEx.IgnoreCase = True
    ' Set case insensitivity.
    regEx.Global = True
    ' Set global applicability.
    Set Matches = regEx.Execute(strng)
    ' Execute.
    If Matches.count > 0 Then
        For Each Match In Matches
            ' Iterate.
            ' Access Match object properties.
        Next
    End If
End Function
```
Set Matches = regEx.Execute(strng) ' Execute search.
For Each Match in Matches ' Iterate Matches collection.
  RetStr = RetStr & "Match found at position ".
  RetStr = RetStr & Match.FirstIndex & ". Match Value is "
  RetStr = RetStr & Match.Value & "." & vbCRLF
Next
RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
**Mid**

Function

See Also

---

**Description**

Returns a specified number of characters from a string.

**Syntax**

```plaintext
Mid(string, start[, length])
```

The `Mid` function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>string</td>
<td><em>String expression</em> from which characters are returned. If <em>string</em> contains Null, Null is returned.</td>
</tr>
<tr>
<td>start</td>
<td>Character position in <em>string</em> at which the part to be taken begins. If <em>start</em> is greater than the number of characters in <em>string</em>, <em>Mid</em> returns a zero-length string (&quot;&quot;).</td>
</tr>
<tr>
<td>length</td>
<td>Number of characters to return. If omitted or if there are fewer than <em>length</em> characters in the text (including the character at <em>start</em>), all characters from the <em>start</em> position to the end of the string are returned.</td>
</tr>
</tbody>
</table>

**Remarks**

To determine the number of characters in *string*, use the `Len` function.

The following example uses the `Mid` function to return six characters, beginning with the fourth character, in a string:

Dim MyVar
MyVar = **Mid**("VB Script is fun!", 4, 6) ' MyVar cc

**Note** The **MidB** function is used with byte data contained in a string. Instead of specifying the number of characters, the arguments specify numbers of bytes.
Minute Function

Description

Returns a whole number between 0 and 59, inclusive, representing the minute of the hour.

Syntax

```
Minute(time)
```

The `time` argument is any expression that can represent a time. If `time` contains `Null`, `Null` is returned.

Remarks

The following example uses the `Minute` function to return the minute of the hour:

```
Dim MyVar
MyVar = Minute(Now)
```
Since this constant is built into VBScript, you don't have to define it before using it. Use it anywhere in your code to represent the values shown.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbObjectError</td>
<td>-2147221504</td>
<td>User-defined error numbers should be greater than this for example,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Err.Raise Number = vbObjectError</td>
</tr>
</tbody>
</table>
Mod Operator

Description

Divides two numbers and returns only the remainder.

Syntax

\[ result = number1 \text{ Mod } number2 \]

The Mod operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>number1</td>
<td>Any numeric expression.</td>
</tr>
<tr>
<td>number2</td>
<td>Any numeric expression.</td>
</tr>
</tbody>
</table>

Remarks

The modulus, or remainder, operator divides \textit{number1} by \textit{number2} (rounding floating-point numbers to integers) and returns only the remainder as \textit{result}. For example, in the following expression, A (which is \textit{result}) equals 5.

\[ A = 19 \text{ Mod } 6.7 \]

If any expression is \texttt{Null}, \textit{result} is also \texttt{Null}. Any expression that is \texttt{Empty} is treated as 0.
Month Function

See Also

Description

Returns a whole number between 1 and 12, inclusive, representing the month of the year.

Syntax

```
Month(date)
```

The `date` argument is any expression that can represent a date. If `date` contains `Null`, `Null` is returned.

Remarks

The following example uses the `Month` function to return the current month:

```
Dim MyVar
MyVar = Month(Now) ' MyVar contains the number corresponding to the current month.
```
MonthName Function

Description

Returns a string indicating the specified month.

Syntax

MonthName(month[, abbreviate])

The `MonthName` function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>month</code></td>
<td>Required. The numeric designation of the month. For example, January is 1, February is 2, and so on.</td>
</tr>
<tr>
<td><code>abbreviate</code></td>
<td>Optional. Boolean value that indicates if the month name is to be abbreviated. If omitted, the default is False, which means that the month name is not abbreviated.</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the `MonthName` function to return an abbreviated month name for a date expression:

```
Dim MyVar
MyVar = MonthName(10, True) ' MyVar contains "Oct".
```
The following constants are used with the `MsgBox` function to identify what buttons and icons appear on a message box and which button is the default. In addition, the modality of the `MsgBox` can be specified. Since these constants are built into VBScript, you don't have to define them before using them. Use them anywhere in your code to represent the values shown for each.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>vbOKOnly</code></td>
<td>0</td>
<td>Display OK button only.</td>
</tr>
<tr>
<td><code>vbOKCancel</code></td>
<td>1</td>
<td>Display OK and Cancel buttons.</td>
</tr>
<tr>
<td><code>vbAbortRetryIgnore</code></td>
<td>2</td>
<td>Display Abort, Retry, and Ignore buttons.</td>
</tr>
<tr>
<td><code>vbYesNoCancel</code></td>
<td>3</td>
<td>Display Yes, No, and Cancel buttons.</td>
</tr>
<tr>
<td><code>vbYesNo</code></td>
<td>4</td>
<td>Display Yes and No buttons.</td>
</tr>
<tr>
<td><code>vbRetryCancel</code></td>
<td>5</td>
<td>Display Retry and Cancel buttons.</td>
</tr>
<tr>
<td><code>vbCritical</code></td>
<td>16</td>
<td>Display Critical Message icon.</td>
</tr>
<tr>
<td><code>vbQuestion</code></td>
<td>32</td>
<td>Display Warning Query icon.</td>
</tr>
<tr>
<td><code>vbExclamation</code></td>
<td>48</td>
<td>Display Warning Message icon.</td>
</tr>
<tr>
<td><code>vbInformation</code></td>
<td>64</td>
<td>Display Information Message icon.</td>
</tr>
<tr>
<td><code>vbDefaultButton1</code></td>
<td>0</td>
<td>First button is the default.</td>
</tr>
<tr>
<td><code>vbDefaultButton2</code></td>
<td>256</td>
<td>Second button is the default.</td>
</tr>
<tr>
<td><code>vbDefaultButton3</code></td>
<td>512</td>
<td>Third button is the default.</td>
</tr>
<tr>
<td><code>vbDefaultButton4</code></td>
<td>768</td>
<td>Fourth button is the default.</td>
</tr>
</tbody>
</table>
Application modal. The user must respond to the message box before continuing work in the current application.

System modal. On Win16 systems, all applications are suspended until the user responds to the message box. On Win32 systems, this constant provides an application modal message box that always remains on top of any other programs you may have running.

The following constants are used with the `MsgBox` function to identify which button a user has selected. These constants are only available when your project has an explicit reference to the appropriate type library containing these constant definitions. For VBScript, you must explicitly declare these constants in your code.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbOK</td>
<td>1</td>
<td>OK button was clicked.</td>
</tr>
<tr>
<td>vbCancel</td>
<td>2</td>
<td>Cancel button was clicked.</td>
</tr>
<tr>
<td>vbAbort</td>
<td>3</td>
<td>Abort button was clicked.</td>
</tr>
<tr>
<td>vbRetry</td>
<td>4</td>
<td>Retry button was clicked.</td>
</tr>
<tr>
<td>vbIgnore</td>
<td>5</td>
<td>Ignore button was clicked.</td>
</tr>
<tr>
<td>vbYes</td>
<td>6</td>
<td>Yes button was clicked.</td>
</tr>
<tr>
<td>vbNo</td>
<td>7</td>
<td>No button was clicked.</td>
</tr>
</tbody>
</table>
**MsgBox**

**Function**

See Also

**Description**

Displays a message in a dialog box, waits for the user to click a button, and returns a value indicating which button the user clicked.

**Syntax**

\[ \text{MsgBox}(\text{prompt[, buttons][, title][, helpfile, context]}) \]

The `MsgBox` function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>prompt</code></td>
<td><em>String expression</em> displayed as the message in the dialog box. The maximum length of <code>prompt</code> is approximately 1024 characters, depending on the width of the characters used. If <code>prompt</code> consists of more than one line, you can separate the lines using a carriage return character (<code>Chr(13)</code>), a linefeed character (<code>Chr(10)</code>), or carriage return–linefeed character combination (<code>Chr(13) &amp; Chr(10)</code>) between each line.</td>
</tr>
<tr>
<td><code>buttons</code></td>
<td><em>Numeric expression</em> that is the sum of values specifying the number and type of buttons to display, the icon style to use, the identity of the default button, and the modality of the message box. See Settings section for values. If omitted, the default value for <code>buttons</code> is 0.</td>
</tr>
<tr>
<td><code>title</code></td>
<td>String expression displayed in the title bar of the dialog box. If you omit <code>title</code>, the application name is placed in the title bar.</td>
</tr>
<tr>
<td></td>
<td>String expression that identifies the Help file to use to...</td>
</tr>
</tbody>
</table>
**helpfile** provide context-sensitive Help for the dialog box. If **helpfile** is provided, **context** must also be provided. Not available on 16-bit platforms.

**context** Numeric expression that identifies the Help context number assigned by the Help author to the appropriate Help topic. If **context** is provided, **helpfile** must also be provided. Not available on 16-bit platforms.

### Settings

The **buttons** argument settings are:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbOKOnly</td>
<td>0</td>
<td>Display <strong>OK</strong> button only.</td>
</tr>
<tr>
<td>vbOKCancel</td>
<td>1</td>
<td>Display <strong>OK</strong> and <strong>Cancel</strong> buttons.</td>
</tr>
<tr>
<td>vbAbortRetryIgnore</td>
<td>2</td>
<td>Display <strong>Abort</strong>, <strong>Retry</strong>, and <strong>Ignore</strong> buttons.</td>
</tr>
<tr>
<td>vbYesNoCancel</td>
<td>3</td>
<td>Display <strong>Yes</strong>, <strong>No</strong>, and <strong>Cancel</strong> buttons.</td>
</tr>
<tr>
<td>vbYesNo</td>
<td>4</td>
<td>Display <strong>Yes</strong> and <strong>No</strong> buttons.</td>
</tr>
<tr>
<td>vbRetryCancel</td>
<td>5</td>
<td>Display <strong>Retry</strong> and <strong>Cancel</strong> buttons.</td>
</tr>
<tr>
<td>vbCritical</td>
<td>16</td>
<td>Display <strong>Critical Message</strong> icon.</td>
</tr>
<tr>
<td>vbQuestion</td>
<td>32</td>
<td>Display <strong>Warning Query</strong> icon.</td>
</tr>
<tr>
<td>vbExclamation</td>
<td>48</td>
<td>Display <strong>Warning Message</strong> icon.</td>
</tr>
<tr>
<td>vbInformation</td>
<td>64</td>
<td>Display <strong>Information Message</strong> icon.</td>
</tr>
<tr>
<td>vbDefaultButton1</td>
<td>0</td>
<td>First button is default.</td>
</tr>
<tr>
<td>vbDefaultButton2</td>
<td>256</td>
<td>Second button is default.</td>
</tr>
<tr>
<td>vbDefaultButton3</td>
<td>512</td>
<td>Third button is default.</td>
</tr>
<tr>
<td>vbDefaultButton4</td>
<td>768</td>
<td>Fourth button is default.</td>
</tr>
</tbody>
</table>

Application modal; the user must respond to the message box before
continuing work in the current application.

<table>
<thead>
<tr>
<th>vbApplicationModal</th>
<th>0</th>
<th>System modal; all applications are suspended until the user responds to the message box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbSystemModal</td>
<td>4096</td>
<td></td>
</tr>
</tbody>
</table>

The first group of values (0–5) describes the number and type of buttons displayed in the dialog box; the second group (16, 32, 48, 64) describes the icon style; the third group (0, 256, 512, 768) determines which button is the default; and the fourth group (0, 4096) determines the modality of the message box. When adding numbers to create a final value for the argument buttons, use only one number from each group.

**Return Values**

The **MsgBox** function has the following return values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Button</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbOK</td>
<td>1</td>
<td>OK</td>
</tr>
<tr>
<td>vbCancel</td>
<td>2</td>
<td>Cancel</td>
</tr>
<tr>
<td>vbAbort</td>
<td>3</td>
<td>Abort</td>
</tr>
<tr>
<td>vbRetry</td>
<td>4</td>
<td>Retry</td>
</tr>
<tr>
<td>vbIgnore</td>
<td>5</td>
<td>Ignore</td>
</tr>
<tr>
<td>vbYes</td>
<td>6</td>
<td>Yes</td>
</tr>
<tr>
<td>vbNo</td>
<td>7</td>
<td>No</td>
</tr>
</tbody>
</table>

**Remarks**

When both helpfile and context are provided, the user can press **F1** to view the Help topic corresponding to the context.

If the dialog box displays a Cancel button, pressing the **ESC** key has the same effect as clicking Cancel. If the dialog box contains a Help button, context-sensitive Help is provided for the dialog box. However, no value is returned until one of the other buttons is clicked.

When the **MsgBox** function is used with Microsoft Internet Explorer, the title of any dialog presented always contains "VBScript:" to differentiate it from standard system dialogs.

The following example uses the **MsgBox** function to display a message box and return a value describing which button was clicked:
Dim MyVar
MyVar = MsgBox ("Hello World!", 65, "MsgBox Example") ' My'
' depending on which button is
' clicked.
Operator

Description

Multiplies two numbers.

Syntax

\[ \text{result} = \text{number1} \ast \text{number2} \]

The \( \ast \) operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>number1</td>
<td>Any \textit{numeric expression}.</td>
</tr>
<tr>
<td>number2</td>
<td>Any numeric expression.</td>
</tr>
</tbody>
</table>

Remarks

If one or both expressions are \texttt{Null} expressions, \textit{result} is \texttt{Null}. If an expression is \texttt{Empty}, it is treated as if it were 0.
Operator

See Also

Description

Finds the difference between two numbers or indicates the negative value of a numeric expression.

Syntax 1

\[ result = number1 - number2 \]

Syntax 2

\[-number\]

The - operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>number</td>
<td>Any numeric expression.</td>
</tr>
<tr>
<td>number1</td>
<td>Any numeric expression.</td>
</tr>
<tr>
<td>number2</td>
<td>Any numeric expression.</td>
</tr>
</tbody>
</table>

Remarks

In Syntax 1, the - operator is the arithmetic subtraction operator used to find the difference between two numbers. In Syntax 2, the - operator is used as the unary negation operator to indicate the negative value of an expression.

If one or both expressions are Null expressions, result is Null. If an expression is Empty, it is treated as if it were 0.
Not Operator

Description

Performs logical negation on an expression.

Syntax

\[ \text{result} = \text{Not} \ \text{expression} \]

The Not operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>expression</td>
<td>Any expression.</td>
</tr>
</tbody>
</table>

Remarks

The following table illustrates how result is determined:

<table>
<thead>
<tr>
<th>If expression is</th>
<th>Then result is</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>False</td>
</tr>
<tr>
<td>False</td>
<td>True</td>
</tr>
<tr>
<td>Null</td>
<td>Null</td>
</tr>
</tbody>
</table>

In addition, the Not operator inverts the bit values of any variable and sets the corresponding bit in result according to the following table:

<table>
<thead>
<tr>
<th>Bit in expression</th>
<th>Bit in result</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Function

Description

Returns the current date and time according to the setting of your computer's system date and time.

Syntax

```vbnet
Now
```

Remarks

The following example uses the `Now` function to return the current date and time:

```vbnet
Dim MyVar
MyVar = Now ' MyVar contains the current date and time.
```
The **Nothing** keyword in VBScript is used to disassociate an object variable from any actual object. Use the **Set** statement to assign **Nothing** to an object variable. For example:

```
Set MyObject = Nothing
```

Several object variables can refer to the same actual object. When **Nothing** is assigned to an object variable, that variable no longer refers to any actual object. When several object variables refer to the same object, memory and system resources associated with the object to which the variables refer are released only after all of them have been set to **Nothing**, either explicitly using **Set**, or implicitly after the last object variable set to **Nothing** goes out of **scope**.
See Also

Description

The **Null** keyword is used to indicate that a variable contains no valid data. This is not the same thing as **Empty**.
Number Property

Description

Returns or sets a numeric value specifying an error. Number is the Err object's default property.

Syntax

\[ \text{object}.\text{Number} [= \text{errornumber}] \]

The Number property syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Always the Err object.</td>
</tr>
<tr>
<td>errornumber</td>
<td>An integer representing a VBScript error number or an SCODE error value.</td>
</tr>
</tbody>
</table>

Remarks

When returning a user-defined error from an Automation object, set Err.Number by adding the number you selected as an error code to the constant vbObjectError.

The following code illustrates the use of the Number property:

```
On Error Resume Next
Err.Raise vbObjectError + 1, "SomeObject" ' Raise Object Error 
MsgBox ("Error # " & CStr(Err.Number) & " " & Err.Description) ' Clear the error.
```

See Also

Applies to

Language Reference

Version 1
Function

Description

Returns a string representing the octal value of a number.

Syntax

Oct(number)

The number argument is any valid expression.

Remarks

If number is not already a whole number, it is rounded to the nearest whole number before being evaluated.

<table>
<thead>
<tr>
<th>If number is</th>
<th>Oct returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null</td>
<td>Null.</td>
</tr>
<tr>
<td>Empty</td>
<td>Zero (0).</td>
</tr>
<tr>
<td>Any other number</td>
<td>Up to 11 octal characters,</td>
</tr>
</tbody>
</table>

You can represent octal numbers directly by preceding numbers in the proper range with &O. For example, &O10 is the octal notation for decimal 8.

The following example uses the Oct function to return the octal value of a number:

Dim MyOct
MyOct = Oct(459) ' Returns 713.
On Error Statement

Description

Enables or disables error-handling.

Syntax

On Error Resume Next
On Error GoTo 0

Remarks

If you don't use an On Error Resume Next statement anywhere in your code, any run-time error that occurs can cause an error message to be displayed and code execution stopped. However, the exact behavior is determined by the host running the code. The host can sometimes opt to handle such errors differently. In some cases, the script debugger may be invoked at the point of the error. In still other cases, there may be no apparent indication that any error occurred because the host does not to notify the user. Again, this is purely a function of how the host handles any errors that occur.

Within any particular procedure, an error is not necessarily fatal as long as error-handling is enabled somewhere along the call stack. If local error-handling is not enabled in a procedure and an error occurs, control is passed back through the call stack until a procedure with error-handling enabled is found and the error is handled at that point. If no procedure in the call stack is found to have error-handling enabled, an error message is displayed at that point and execution stops or the host handles the error as appropriate.

On Error Resume Next causes execution to continue with the statement immediately following the statement that caused the run-time error, or with the statement immediately following the most recent call out of the procedure containing the On Error Resume Next statement. This allows execution to continue despite a run-time error. You can then build the error-handling routine inline within the procedure.
An **On Error Resume Next** statement becomes inactive when another procedure is called, so you should execute an **On Error Resume Next** statement in each called routine if you want inline error handling within that routine. When a procedure is exited, the error-handling capability reverts to whatever error-handling was in place before entering the exited procedure.

Use **On Error GoTo 0** to disable error handling if you have previously enabled it using **On Error Resume Next**.

The following example illustrates use of the **On Error Resume Next** statement:

```vbnet
On Error Resume Next
Err.Raise 6 \ Raise an overflow error.
MsgBox "Error # " & CStr(Err.Number) & " " & Err.Description
Err.Clear \ Clear the error.
```
Operator Precedence

Description

When several operations occur in an expression, each part is evaluated and resolved in a predetermined order called operator precedence. Parentheses can be used to override the order of precedence and force some parts of an expression to be evaluated before other parts. Operations within parentheses are always performed before those outside. Within parentheses, however, normal operator precedence is maintained.

When expressions contain operators from more than one category, arithmetic operators are evaluated first, comparison operators are evaluated next, and logical operators are evaluated last. Comparison operators all have equal precedence; that is, they are evaluated in the left-to-right order in which they appear. Arithmetic and logical operators are evaluated in the following order of precedence:

<table>
<thead>
<tr>
<th>Arithmetic</th>
<th>Comparison</th>
<th>Logical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exponentiation (^)</td>
<td>Equality (=)</td>
<td>Not</td>
</tr>
<tr>
<td>Negation (-)</td>
<td>Inequality (&lt;&gt;)</td>
<td>And</td>
</tr>
<tr>
<td>Multiplication and division (*, /)</td>
<td>Less than (&lt;)</td>
<td>Or</td>
</tr>
<tr>
<td>Integer division ()</td>
<td>Greater than (&gt;)</td>
<td>Xor</td>
</tr>
<tr>
<td>Modulus arithmetic (Mod)</td>
<td>Less than or equal to (&lt;=)</td>
<td>Eqv</td>
</tr>
<tr>
<td>Addition and subtraction (+, -)</td>
<td>Greater than or equal to (&gt;=)</td>
<td>Imp</td>
</tr>
<tr>
<td>String concatenation (&amp;)</td>
<td>Is</td>
<td>&amp;</td>
</tr>
</tbody>
</table>

When multiplication and division occur together in an expression, each operation is evaluated as it occurs from left to right. Likewise, when addition and subtraction occur together in an expression, each operation is evaluated in order of appearance from left to right.

The string concatenation operator (&) is not an arithmetic operator, but in precedence it does fall
after all arithmetic operators and before all comparison operators. The `is` operator is an object reference comparison operator. It does not compare objects or their values; it checks only to determine if two object references refer to the same object.
Option Explicit Statement

Description

Forces explicit declaration of all variables in a script.

Syntax

Option Explicit

Remarks

If used, the Option Explicit statement must appear in a script before any other statements.

When you use the Option Explicit statement, you must explicitly declare all variables using the Dim, Private, Public, or ReDim statements. If you attempt to use an undeclared variable name, an error occurs.

Tip  Use Option Explicit to avoid incorrectly typing the name of an existing variable or to avoid confusion in code where the scope of the variable is not clear.

The following example illustrates use of the Option Explicit statement:

Option Explicit  ' Force explicit variable declaration
Dim MyVar       ' Declare variable.
MyInt = 10 ' Undeclared variable generates error
MyVar = 10 ' Declared variable does not gene
Or Operator

See Also

Description

Performs a logical disjunction on two expressions.

Syntax

\[ result = expression1 \text{ Or } expression2 \]

The `Or` operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>result</code></td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td><code>expression1</code></td>
<td>Any expression.</td>
</tr>
<tr>
<td><code>expression2</code></td>
<td>Any expression.</td>
</tr>
</tbody>
</table>

Remarks

If either or both expressions evaluate to `True`, `result` is `True`. The following table illustrates how `result` is determined:

<table>
<thead>
<tr>
<th>If <code>expression1</code> is</th>
<th>And <code>expression2</code> is</th>
<th>Then <code>result</code> is</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>True</td>
<td>False</td>
<td>True</td>
</tr>
<tr>
<td>True</td>
<td><code>Null</code></td>
<td>True</td>
</tr>
<tr>
<td><code>Null</code></td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td><code>Null</code></td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td><code>Null</code></td>
<td><code>Null</code></td>
<td><code>Null</code></td>
</tr>
<tr>
<td><code>Null</code></td>
<td>True</td>
<td>True</td>
</tr>
</tbody>
</table>
The **Or** operator also performs a [bitwise comparison](https://en.wikipedia.org/wiki/Bitwise_operation) of identically positioned bits in two [numeric expressions](https://en.wikipedia.org/wiki/Number) and sets the corresponding bit in *result* according to the following table:

<table>
<thead>
<tr>
<th>If bit in <em>expression1</em> is</th>
<th>And bit in <em>expression2</em> is</th>
<th>Then <em>result</em> is</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Pattern Property

**Description**

Sets or returns the regular expression pattern being searched for.

**Syntax**

```
object.Pattern [= "searchstring"]
```

The **Pattern** property syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always a RegExp object variable.</td>
</tr>
<tr>
<td>searchstring</td>
<td>Optional. Regular string expression being searched for. May include any of the regular expression characters defined in the table in the Settings section.</td>
</tr>
</tbody>
</table>

**Settings**

Special characters and sequences are used in writing patterns for regular expressions. The following table describes and gives an example of the characters and sequences that can be used.

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\</td>
<td>Marks the next character as either a special character or a literal. For example, &quot;n&quot; matches the character &quot;n&quot;, &quot;\n&quot; matches a newline character. The sequence &quot;&quot; matches &quot;&quot; and &quot;(&quot; matches &quot;.&quot;.</td>
</tr>
<tr>
<td>^</td>
<td>Matches the beginning of input.</td>
</tr>
<tr>
<td>$</td>
<td>Matches the end of input.</td>
</tr>
<tr>
<td>*</td>
<td>Matches the preceding character zero or more times. For example, &quot;zo*&quot; matches either &quot;z&quot; or &quot;zoo&quot;.</td>
</tr>
<tr>
<td>Pattern</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>+</td>
<td>Matches the preceding character one or more times. For example, &quot;zo+&quot; matches &quot;zoo&quot; but not &quot;z&quot;.</td>
</tr>
<tr>
<td>?</td>
<td>Matches the preceding character zero or one time. For example, &quot;a?ve?&quot; matches the &quot;ve&quot; in &quot;never&quot;.</td>
</tr>
<tr>
<td>.</td>
<td>Matches any single character except a newline character.</td>
</tr>
<tr>
<td>(pattern)</td>
<td>Matches pattern and remembers the match. The matched substring can be retrieved from the resulting Matches collection, using Item [0]...[n]. To match parentheses characters ( ), use &quot;(&quot; or &quot;)&quot;.</td>
</tr>
<tr>
<td>x/y</td>
<td>Matches either x or y. For example, &quot;z</td>
</tr>
<tr>
<td>{n}</td>
<td>n is a nonnegative integer. Matches exactly n times. For example, &quot;o{2}&quot; does not match the &quot;o&quot; in &quot;Bob,&quot; but matches the first two o's in &quot;fooooood&quot;.</td>
</tr>
<tr>
<td>{n,m}</td>
<td>m and n are nonnegative integers. Matches at least n and at most m times. For example, &quot;o{1,3}&quot; matches the first three o's in &quot;foooood.&quot; &quot;o{0,1}&quot; is equivalent to &quot;o?&quot;.</td>
</tr>
<tr>
<td>[xyz]</td>
<td>A character set. Matches any one of the enclosed characters. For example, &quot;[abc]&quot; matches the &quot;a&quot; in &quot;plain&quot;.</td>
</tr>
<tr>
<td>[^xyz]</td>
<td>A negative character set. Matches any character not enclosed. For example, &quot;[^abc]&quot; matches the &quot;p&quot; in &quot;plain&quot;.</td>
</tr>
<tr>
<td>[a-z]</td>
<td>A range of characters. Matches any character in the specified range. For example, &quot;[a-z]&quot; matches any lowercase alphabetic character in the range &quot;a&quot; through &quot;z&quot;.</td>
</tr>
<tr>
<td>[^m-z]</td>
<td>A negative range characters. Matches any character not in the specified range. For example, &quot;[m-z]&quot; matches any character not in the range &quot;m&quot; through &quot;z&quot;.</td>
</tr>
<tr>
<td>ab</td>
<td>Matches a word boundary, that is, the position between a word and a space. For example, &quot;er&quot; matches the &quot;er&quot; in &quot;never&quot; but not the &quot;er&quot; in &quot;verb&quot;.</td>
</tr>
<tr>
<td>AB</td>
<td>Matches a nonword boundary. &quot;ea*rB&quot; matches the &quot;ear&quot; in &quot;never early&quot;.</td>
</tr>
<tr>
<td>d</td>
<td>Matches a digit character. Equivalent to [0-9].</td>
</tr>
<tr>
<td>D</td>
<td>Matches a nondigit character. Equivalent to [^0-9].</td>
</tr>
<tr>
<td>f</td>
<td>Matches a form-feed character.</td>
</tr>
<tr>
<td>n</td>
<td>Matches a newline character.</td>
</tr>
<tr>
<td>r</td>
<td>Matches a carriage return character.</td>
</tr>
<tr>
<td>s</td>
<td>Matches any white space including space, tab, form-feed, etc. Equivalent to &quot; [\f\n\r\t\v]&quot;.</td>
</tr>
<tr>
<td>S</td>
<td>Matches any nonwhite space character. Equivalent to &quot;[^\f\n\r\t\v]&quot;.</td>
</tr>
<tr>
<td>t</td>
<td>Matches a tab character.</td>
</tr>
<tr>
<td>v</td>
<td>Matches a vertical tab character.</td>
</tr>
<tr>
<td>w</td>
<td>Matches any word character including underscore. Equivalent to &quot;[A-Za-z0-9_]&quot;.</td>
</tr>
<tr>
<td>W</td>
<td>Matches any nonword character. Equivalent to &quot;[^A-Za-z0-9_]&quot;.</td>
</tr>
<tr>
<td>num</td>
<td>Matches num, where num is a positive integer. A reference back to remembered matches. For example, &quot;,(,)\1&quot; matches two consecutive identical characters.</td>
</tr>
<tr>
<td>n</td>
<td>Matches n, where n is an octal escape value. Octal escape values must be 1, 2, or 3 digits long. For example, &quot;\11&quot; and &quot;\011&quot; both match a tab character. &quot;\0011&quot; is the equivalent of &quot;\011&quot; &amp; &quot;1&quot;. Octal escape values must not exceed 256. If they do, only the first two digits comprise the expression. Allows ASCII codes to be used in regular expressions.</td>
</tr>
<tr>
<td>N</td>
<td>Matches n, where n is a hexadecimal escape value. Hexadecimal escape values must...</td>
</tr>
</tbody>
</table>
Remarks

The following code illustrates the use of the **Pattern** property:

```vbscript
Function RegExpTest(patrn, strng)
    Dim regEx, Match, Matches ' Create variable.
    Set regEx = New RegExp ' Create a regular expression.
    regEx.Pattern = patrn ' Set pattern.
    regEx.IgnoreCase = True ' Set case insensitivity.
    regEx.Global = True ' Set global applicability.
    Set Matches = regEx.Execute(strng) ' Execute search.
    For Each Match in Matches ' Iterate Matches collection.
        RetStr = RetStr & "Match found at position "
        RetStr = RetStr & Match.FirstIndex & ". Match Value is "
        RetStr = RetStr & Match.Value & ": " & vbCRLF
    Next
    RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
```
Private

Statement

See Also

Description

Declares private variables and allocates storage space. Declares, in a **Class** block, a private variable.

Syntax

`Private varname[[subscripts]][, varname[[subscripts]]] . . .`

The **Private** statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>varname</code></td>
<td>Name of the <a href="#">variable</a> follows standard variable naming conventions.</td>
</tr>
<tr>
<td><code>subscripts</code></td>
<td>Dimensions of an <strong>array</strong> variable; up to 60 multiple dimensions may be declared. The <code>subscripts</code> argument uses the following syntax:</td>
</tr>
<tr>
<td><code>upper [, upper]</code></td>
<td>The lower bound of an array is always zero.</td>
</tr>
</tbody>
</table>

Remarks

**Private** statement variables are available only to the script in which they are declared.

A variable that refers to an object must be assigned an existing
object using the **Set** statement before it can be used. Until it is assigned an object, the declared object variable is initialized as **Empty**.

You can also use the **Private** statement with empty parentheses to declare a dynamic array. After declaring a dynamic array, use the **ReDim** statement within a **procedure** to define the number of dimensions and elements in the array. If you try to redeclare a dimension for an array variable whose size was explicitly specified in a **Private**, **Public**, or **Dim** statement, an error occurs.

---

**Tip** When you use the **Private** statement in a procedure, you generally put the **Private** statement at the beginning of the procedure.

---

The following example illustrates use of the **Private** statement:

```vba
Private MyNumber ' Private Variant variable.
Private MyArray(9)' Private array variable.
 ' Multiple Private declarations of Variant variables.
Private MyNumber, MyVar, YourNumber
```
Property Get
Statement

See Also

Description

Declares, in a Class block, the name, arguments, and code that form the body of a Property procedure that gets (returns) the value of a property.

Syntax

[Public [Default] | Private] Property Get name [(arglist)]
[statements]
[[Set] name = expression]
[Exit Property]
[statements]
[[Set] name = expression]
End Property

The Property Get statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Indicates that the Property Get procedure is accessible to all other procedures in all scripts.</td>
</tr>
<tr>
<td>Default</td>
<td>Used only with the Public keyword to indicate that the property defined in the Property Get procedure is the default property for the class.</td>
</tr>
<tr>
<td>Private</td>
<td>Indicates that the Property Get procedure is accessible only to other procedures in the Class block where it's declared.</td>
</tr>
<tr>
<td>name</td>
<td>Name of the Property Get procedure; follows standard variable naming conventions, except that the name can be the same as a Property Let or Property Set procedure in the same Class block.</td>
</tr>
<tr>
<td></td>
<td>List of variables representing arguments that are passed to the Property Get procedure.</td>
</tr>
</tbody>
</table>
When called, multiple arguments are separated by commas. The name of each argument in a `Property Get` procedure must be the same as the corresponding argument in a `Property Let` procedure (if one exists).

**Set**

Keyword used when assigning an object as the return value of a `Property Get` procedure.

**Expression**

Return value of the `Property Get` procedure.

### Remarks

If not explicitly specified using either `Public` or `Private`, `Property Get` procedures are public by default, that is, they are visible to all other procedures in your script. The value of local variables in a `Property Get` procedure is not preserved between calls to the procedure.

You can't define a `Property Get` procedure inside any other procedure (e.g. `Function` or `Property Let`).

The `Exit Property` statement causes an immediate exit from a `Property Get` procedure. Program execution continues with the statement that follows the statement that called the `Property Get` procedure. Any number of `Exit Property` statements can appear anywhere in a `Property Get` procedure.

Like a `Sub` and `Property Let` procedure, a `Property Get` procedure is a separate procedure that can take arguments, perform a series of statements, and change the value of its arguments. However, unlike a `Sub` and `Property Let`, you can use a `Property Get` procedure on the right side of an `expression` in the same way you use a `Function` or property name when you want to return the value of a property.
Property Let Statement

See Also

Description

Declares, in a Class block, the name, arguments, and code that form the body of a Property procedure that assigns (sets) the value of a property.

Syntax

```
[Public | Private] Property Let name ([arglist,] value)
    [statements]
    [Exit Property]
    [statements]
End Property
```

The Property Let statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Indicates that the Property Let procedure is accessible to all other procedures in all scripts.</td>
</tr>
<tr>
<td>Private</td>
<td>Indicates that the Property Let procedure is accessible only to other procedures in the Class block where it's declared.</td>
</tr>
<tr>
<td>name</td>
<td>Name of the Property Let procedure; follows standard variable naming conventions, except that the name can be the same as a Property Get or Property Set procedure in the same Class block.</td>
</tr>
<tr>
<td>arglist</td>
<td>List of variables representing arguments that are passed to the Property Let procedure when it is called. Multiple arguments are separated by commas. The name of each argument in a Property Let procedure must be the same as the corresponding argument in a Property Get procedure. In addition, the Property Let procedure will always have one more argument than its corresponding Property Get procedure. That argument is the value being assigned to the property.</td>
</tr>
<tr>
<td>value</td>
<td>Variable to contain the value to be assigned to the property. When the procedure is called, this argument appears on the right side of the calling expression.</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>statements</td>
<td>Any group of statements to be executed within the body of the Property Let procedure.</td>
</tr>
</tbody>
</table>

**Note** Version Every Property Let statement must define at least one argument for the procedure it defines. That argument (or the last argument if there is more than one) contains the actual value to be assigned to the property when the procedure defined by the Property Let statement is invoked. That argument is referred to as value in the preceding syntax.

**Remarks**

If not explicitly specified using either Public or Private, Property Let procedures are public by default, that is, they are visible to all other procedures in your script. The value of local variables in a Property Let procedure is not preserved between calls to the procedure.

You can't define a Property Let procedure inside any other procedure (e.g. Function or Property Get).

The Exit Property statement causes an immediate exit from a Property Let procedure. Program execution continues with the statement that follows the statement that called the Property Let procedure. Any number of Exit Property statements can appear anywhere in a Property Let procedure.

Like a Function and Property Get procedure, a Property Let procedure is a separate procedure that can take arguments, perform a series of statements, and change the value of its arguments. However, unlike a Function and Property Get procedure, both of which return a value, you can only use a Property Let procedure on the left side of a property assignment expression.
Property Set Statement

Description

Declares, in a Class block, the name, arguments, and code that form the body of a Property procedure that sets a reference to an object.

Syntax

[Public | Private] Property Set name([arglist,] reference)

[statements]

[Exit Property]

[statements]

End Property

The Property Set statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Indicates that the Property Set procedure is accessible to all other procedures in all scripts.</td>
</tr>
<tr>
<td>Private</td>
<td>Indicates that the Property Set procedure is accessible only to other procedures in the Class block where it's declared.</td>
</tr>
<tr>
<td>name</td>
<td>Name of the Property Set procedure; follows standard variable naming conventions, except that the name can be the same as a Property Get or Property Let procedure in the same Class block.</td>
</tr>
<tr>
<td>arglist</td>
<td>List of variables representing arguments that are passed to the Property Set procedure when it is called. Multiple arguments are separated by commas. In addition, the Property Set procedure will always have one more argument than its corresponding Property Get procedure. That argument is the object being assigned to the property.</td>
</tr>
<tr>
<td>reference</td>
<td>Variable containing the object reference used on the right side of the object reference assignment.</td>
</tr>
<tr>
<td><strong>statements</strong></td>
<td>Any group of statements to be executed within the body of the <strong>Property Set</strong> procedure.</td>
</tr>
</tbody>
</table>

**Note** Version Every **Property Set** statement must define at least one argument for the procedure it defines. That argument (or the last argument if there is more than one) contains the actual object reference for the property when the procedure defined by the **Property Set** statement is invoked. That argument is referred to as **reference** in the preceding syntax.

### Remarks

If not explicitly specified using either **Public** or **Private**, **Property Set** procedures are public by default, that is, they are visible to all other procedures in your script. The value of local variables in a **Property Set** procedure is not preserved between calls to the procedure.

You can't define a **Property Set** procedure inside any other procedure (e.g. **Function** or **Property Let**).

The **Exit Property** statement causes an immediate exit from a **Property Set** procedure. Program execution continues with the statement that follows the statement that called the **Property Set** procedure. Any number of **Exit Property** statements can appear anywhere in a **Property Set** procedure.

Like a **Function** and **Property Get** procedure, a **Property Set** procedure is a separate procedure that can take arguments, perform a series of statements, and change the value of its arguments. However, unlike a **Function** and **Property Get** procedure, both of which return a value, you can only use a **Property Set** procedure on the left side of an object reference assignment (**Set** statement).
Public Statement

See Also

Description

Declares public variables and allocates storage space. Declares, in a Class block, a private variable.

Syntax

Public varname[([subscripts])][, varname[([subscripts])]] . . .

The Public statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>varname</td>
<td>Name of the variable; follows standard variable naming conventions.</td>
</tr>
<tr>
<td>subscripts</td>
<td>Dimensions of an array variable; up to 60 multiple dimensions may be declared. The subscripts argument uses the following syntax:</td>
</tr>
<tr>
<td></td>
<td>upper [, upper] . . .</td>
</tr>
<tr>
<td></td>
<td>The lower bound of an array is always zero.</td>
</tr>
</tbody>
</table>

Remarks

Public statement variables are available to all procedures in all scripts.

A variable that refers to an object must be assigned an existing
object using the **Set** statement before it can be used. Until it is assigned an object, the declared object variable is initialized as **Empty**.

You can also use the **Public** statement with empty parentheses to declare a dynamic array. After declaring a dynamic array, use the **ReDim** statement within a **procedure** to define the number of dimensions and elements in the array. If you try to redeclare a dimension for an array variable whose size was explicitly specified in a **Private**, **Public**, or **Dim** statement, an error occurs.

The following example illustrates the use of the **Public** statement:

```vba
Public MyNumber       ' Public Variant variable.
Public MyArray(9)    ' Public array variable.
              ' Multiple Public declarations of Variant variables.
Public MyNumber, MyVar, YourNumber
```
Raise Method

Description

Generates a run-time error.

Syntax

object.Raise(number, source, description, helpfile, helpcontext)

The Raise method has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Always the Err object.</td>
</tr>
<tr>
<td>number</td>
<td>A Long integer subtype that identifies the nature of the error. VBScript errors (both VBScript-defined and user-defined errors) are in the range 0–65535.</td>
</tr>
<tr>
<td>source</td>
<td>A string expression naming the object or application that originally generated the error. When setting this property for an Automation object, use the form project.class. If nothing is specified, the programmatic ID of the current VBScript project is used.</td>
</tr>
<tr>
<td>description</td>
<td>A string expression describing the error. If unspecified, the value in number is examined. If it can be mapped to a VBScript run-time error code, a string provided by VBScript is used as description. If there is no VBScript error corresponding to number, a generic error message is used.</td>
</tr>
<tr>
<td>helpfile</td>
<td>The fully qualified path to the Help file in which help on this error can be found. If unspecified,</td>
</tr>
</tbody>
</table>
VBScript uses the fully qualified drive, path, and file name of the VBScript Help file.

The context ID identifying a topic within helpfile that provides help for the error. If omitted, the VBScript Help file context ID for the error corresponding to the number property is used, if it exists.

Remarks

All the arguments are optional except number. If you use **Raise**, however, without specifying some arguments, and the property settings of the **Err** object contain values that have not been cleared, those values become the values for your error.

When setting the **number** property to your own error code in an **Automation object**, you add your error code number to the constant **vbObjectError**. For example, to generate the error number 1050, assign **vbObjectError** + 1050 to the **number** property.

The following example illustrates use of the **Raise** method:

```vbscript
On Error Resume Next
Err.Raise 6 ' Raise an overflow error.
MsgBox ("Error # " & CStr(Err.Number) & " " & Err.Description)
Err.Clear ' Clear the error.
```
Randomize Statement

Description

Initializes the random-number generator.

Syntax

Randomize [number]

The number argument can be any valid numeric expression.

Remarks

Randomize uses number to initialize the Rnd function's random-number generator, giving it a new seed value. If you omit number, the value returned by the system timer is used as the new seed value.

If Randomize is not used, the Rnd function (with no arguments) uses the same number as a seed the first time it is called, and thereafter uses the last generated number as a seed value.

Note To repeat sequences of random numbers, call Rnd with a negative argument immediately before using Randomize with a numeric argument. Using Randomize with the same value for number does not repeat the previous sequence.

The following example illustrates use of the Randomize statement:

Dim MyValue, Response
Randomize ' Initialize random-numbe
Do Until Response = vbNo
    MyValue = Int((6 * Rnd) + 1)  ' Generate random value between 1 and 6.
    MsgBox MyValue
    Response = MsgBox ("Roll again? ", vbYesNo)
Loop
ReDim

Statement

See Also

Description

Declares dynamic-array variables, and allocates or reallocates storage space at procedure level.

Syntax

ReDim [Preserve] varname(subscripts) [, varname(subscripts)] . . .

The ReDim statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preserve</td>
<td>Preserves the data in an existing array when you change the size of the last dimension.</td>
</tr>
<tr>
<td>varname</td>
<td>Name of the variable; follows standard variable naming conventions.</td>
</tr>
<tr>
<td>subscripts</td>
<td>Dimensions of an array variable; up to 60 multiple dimensions may be declared. The subscripts argument uses the following syntax:</td>
</tr>
<tr>
<td></td>
<td>upper [,upper] . . .</td>
</tr>
<tr>
<td></td>
<td>The lower bound of an array is always zero.</td>
</tr>
</tbody>
</table>

Remarks

The ReDim statement is used to size or resize a dynamic array that has already been formally declared using a Private, Public, or Dim statement with empty parentheses (without dimension subscripts). You can use the ReDim statement repeatedly to change the number of elements and
dimensions in an array.

If you use the Preserve keyword, you can resize only the last array dimension, and you can't change the number of dimensions at all. For example, if your array has only one dimension, you can resize that dimension because it is the last and only dimension. However, if your array has two or more dimensions, you can change the size of only the last dimension and still preserve the contents of the array.

The following example shows how you can increase the size of the last dimension of a dynamic array without erasing any existing data contained in the array.

```
ReDim X(10, 10, 10)
...
ReDim Preserve X(10, 10, 15)
```

---

**Caution** If you make an array smaller than it was originally, data in the eliminated elements is lost.

---

When variables are initialized, a numeric variable is initialized to 0 and a string variable is initialized to a zero-length string ("""). A variable that refers to an object must be assigned an existing object using the Set statement before it can be used. Until it is assigned an object, the declared object variable has the special value **Nothing**.
 REGARD EXP

Object

Description

Provides simple regular expression support.

Remarks

The following code illustrates the use of the \texttt{RegExp} object:

\begin{verbatim}
Function RegExpTest(patrn, strng)
    Dim regEx, Match, Matches   ' Create variable.
    Set regEx = New RegExp       ' Create a regular expression.
    regEx.Pattern = patrn       ' Set pattern.
    regEx.IgnoreCase = True     ' Set case insensitivity.
    regEx.Global = True         ' Set global applicability.
    Set Matches = regEx.Execute(strng) ' Execute search.
    For Each Match in Matches  ' Iterate Matches collection.
        RetStr = RetStr & "Match found at position "
        RetStr = RetStr & Match.FirstIndex & ". Match Value is "
        RetStr = RetStr & Match.Value & "." & vbCRLF
    Next
    RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
\end{verbatim}
Rem Statement

Description

Includes explanatory remarks in a program.

Syntax

```
Rem comment
or
' comment
```

The `comment` argument is the text of any comment you want to include. After the `Rem` keyword, a space is required before `comment`.

Remarks

As shown in the syntax section, you can use an apostrophe ('`) instead of the `Rem` keyword. If the `Rem` keyword follows other statements on a line, it must be separated from the statements by a colon. However, when you use an apostrophe, the colon is not required after other statements.

The following example illustrates the use of the `Rem` statement:

```
Dim MyStr1, MyStr2
MyStr1 = "Hello" : Rem Comment after a statement separated by a colon
MyStr2 = "Goodbye"  ' This is also a comment; no colon is needed
Rem Comment on a line with no code; no colon is needed.
```
**Replace Function**

**See Also**

**Description**

Returns a string in which a specified substring has been replaced with another substring a specified number of times.

**Syntax**

\[
\text{Replace}(\text{expression}, \text{find}, \text{replacewith}[, \text{start}[, \text{count}[, \text{compare}]]])
\]

The `Replace` function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>expression</code></td>
<td>Required. <a href="#">String expression</a> containing substring to replace.</td>
</tr>
<tr>
<td><code>find</code></td>
<td>Required. Substring being searched for.</td>
</tr>
<tr>
<td><code>replacewith</code></td>
<td>Required. Replacement substring.</td>
</tr>
<tr>
<td><code>start</code></td>
<td>Optional. Position within <code>expression</code> where substring search is to begin. If omitted, 1 is assumed. Must be used in conjunction with <code>count</code>.</td>
</tr>
<tr>
<td><code>count</code></td>
<td>Optional. Number of substring substitutions to perform. If omitted, the default value is -1, which means make all possible substitutions. Must be used in conjunction with <code>start</code>.</td>
</tr>
<tr>
<td><code>compare</code></td>
<td>Optional. Numeric value indicating the kind of comparison to use when evaluating substrings. See Settings section for values. If omitted, the default value is 0, which means perform a binary comparison.</td>
</tr>
</tbody>
</table>
The *compare* argument can have the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbBinaryCompare</td>
<td>0</td>
<td>Perform a binary comparison.</td>
</tr>
<tr>
<td>vbTextCompare</td>
<td>1</td>
<td>Perform a textual comparison.</td>
</tr>
</tbody>
</table>

**Return Values**

The *Replace* function returns the following values:

<table>
<thead>
<tr>
<th>If</th>
<th>Replace returns</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>expression</em> is zero-length</td>
<td>Zero-length string (&quot;&quot;&quot;).</td>
</tr>
<tr>
<td><em>expression</em> is Null</td>
<td>An error.</td>
</tr>
<tr>
<td><em>find</em> is zero-length</td>
<td>Copy of <em>expression</em>.</td>
</tr>
<tr>
<td><em>replacewith</em> is zero-length</td>
<td>Copy of <em>expression</em> with all occurrences of <em>find</em> removed.</td>
</tr>
<tr>
<td><em>start</em> &gt; Len(<em>expression</em>)</td>
<td>Zero-length string.</td>
</tr>
<tr>
<td><em>count</em> is 0</td>
<td>Copy of <em>expression</em>.</td>
</tr>
</tbody>
</table>

**Remarks**

The return value of the *Replace* function is a string, with substitutions made, that begins at the position specified by *start* and and concludes at the end of the *expression* string. It is not a copy of the original string from start to finish.

The following example uses the *Replace* function to return a string:

```vbnet
Dim MyString
MyString = Replace("XXpXXPXXp", "p", "Y") ' of the string. R
```
MyString = Replace("XXpXXPXXp", "p", "Y", ' ')
' Returns "YXX
Replace Method

Description

Replaces text found in a regular expression search.

Syntax

```
object.Replace(string1, string2)
```

The **Replace** method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a RegExp object.</td>
</tr>
<tr>
<td>string1</td>
<td>Required. String1 is the text string in which the text replacement is to occur.</td>
</tr>
<tr>
<td>string2</td>
<td>Required. String2 is the replacement text string.</td>
</tr>
</tbody>
</table>

Remarks

The actual pattern for the text being replaced is set using the **Pattern** property of the **RegExp** object.

The **Replace** method returns a copy of `string1` with the text of `RegExp.Pattern` replaced with `string2`. If no match is found, a copy of `string1` is returned unchanged.

The following code illustrates use of the **Replace** method:

```
Function ReplaceTest(patrn, replStr)
```
Dim regEx, str1 ' Create variables.
str1 = "The quick brown fox jumped over the lazy dog."
Set regEx = New RegExp ' Create regular expression.
regEx.Pattern = patrn ' Set pattern.
regEx.IgnoreCase = True ' Make case insensitive.
ReplaceTest = regEx.Replace(str1, replStr) ' Make replacement.
End Function

MsgBox(ReplaceTest("fox", "cat")) ' Replace 'fox' with 'c

In addition, the **Replace** method can replace subexpressions in the pattern. The following call to the function shown in the previous example swaps each pair of words in the original string:

MsgBox(ReplaceText("(\S+)(\s+)(\S+)", "$3$2$1")) ' Swap pair
RGB Function

Description

Returns a whole number representing an RGB color value.

Syntax

\[ \text{RGB}(\text{red}, \text{green}, \text{blue}) \]

The RGB function has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>red</td>
<td>Required. Number in the range 0-255 representing the red component of the color.</td>
</tr>
<tr>
<td>green</td>
<td>Required. Number in the range 0-255 representing the green component of the color.</td>
</tr>
<tr>
<td>blue</td>
<td>Required. Number in the range 0-255 representing the blue component of the color.</td>
</tr>
</tbody>
</table>

Remarks

Application methods and properties that accept a color specification expect that specification to be a number representing an RGB color value. An RGB color value specifies the relative intensity of red, green, and blue to cause a specific color to be displayed.

The low-order byte contains the value for red, the middle byte contains the value for green, and the high-order byte contains the value for blue.
For applications that require the byte order to be reversed, the following function will provide the same information with the bytes reversed:

```
Function RevRGB(red, green, blue)
    RevRGB = CLng(blue + (green * 256) + (red * 65536))
End Function
```

The value for any argument to RGB that exceeds 255 is assumed to be 255.
Right Function

See Also

Description

Returns a specified number of characters from the right side of a string.

Syntax

Right(string, length)

The Right function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>string</td>
<td>String expression from which the rightmost characters are returned. If string contains Null, Null is returned.</td>
</tr>
<tr>
<td>length</td>
<td>Numeric expression indicating how many characters to return. If 0, a zero-length string is returned. If greater than or equal to the number of characters in string, the entire string is returned.</td>
</tr>
</tbody>
</table>

Remarks

To determine the number of characters in string, use the Len function.

The following example uses the Right function to return a specified number of characters from the right side of a string:

Dim AnyString, MyStr
AnyString = "Hello World" ' Define string.
MyStr = Right(AnyString, 1) ' Returns "d".
MyStr = Right(AnyString, 6) ' Returns " World".
MyStr = **Right(AnyString, 20)**  ' Returns "Hello W

**Note**  The **RightB** function is used with byte data contained in a string. Instead of specifying the number of characters to return, *length* specifies the number of bytes.
Function

Description

Returns a random number.

Syntax

```vbnet
Rnd[(number)]
```

The `number` argument can be any valid numeric expression.

Remarks

The `Rnd` function returns a value less than 1 but greater than or equal to 0. The value of `number` determines how `Rnd` generates a random number:

<table>
<thead>
<tr>
<th>If <code>number</code> is</th>
<th><code>Rnd</code> generates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than zero</td>
<td>The same number every time, using <code>number</code> as the <code>seed</code>.</td>
</tr>
<tr>
<td>Greater than zero</td>
<td>The next random number in the sequence.</td>
</tr>
<tr>
<td>Equal to zero</td>
<td>The most recently generated number.</td>
</tr>
<tr>
<td>Not supplied</td>
<td>The next random number in the sequence.</td>
</tr>
</tbody>
</table>

For any given initial seed, the same number sequence is generated because each successive call to the `Rnd` function uses the previous number as a seed for the next number in the sequence.

Before calling `Rnd`, use the `Randomize` statement without an argument to initialize the random-number generator with a seed based on the system timer.

To produce random integers in a given range, use this formula:
\[ \text{Int}((\text{upperbound} - \text{lowerbound} + 1) \times \text{Rnd} + \text{lowerbound}) \]

Here, \textit{upperbound} is the highest number in the range, and \textit{lowerbound} is the lowest number in the range.

\textbf{Note}  To repeat sequences of random numbers, call \texttt{Rnd} with a negative argument immediately before using \texttt{Randomize} with a numeric argument. Using \texttt{Randomize} with the same value for \textit{number} does not repeat the previous sequence.
Round Function

Description

Returns a number rounded to a specified number of decimal places.

Syntax

Round(expression[, numdecimalplaces])

The `Round` function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>expression</td>
<td>Required. [Numeric expression] being rounded.</td>
</tr>
<tr>
<td>numdecimalplaces</td>
<td>Optional. Number indicating how many places to the right of the decimal are included in the rounding. If omitted, integers are returned by the <code>Round</code> function.</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the `Round` function to round a number to two decimal places:

Dim MyVar, pi
pi = 3.14159
MyVar = Round(pi, 2) ' MyVar contains 3.14.
ScriptEngine Function

See Also

Description

Returns a string representing the scripting language in use.

Syntax

ScriptEngine

Return Values

The ScriptEngine function can return any of the following strings:

<table>
<thead>
<tr>
<th>String</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBScript</td>
<td>Indicates that Microsoft® Visual Basic® Scripting Edition is the current scripting engine.</td>
</tr>
<tr>
<td>JScript</td>
<td>Indicates that Microsoft JScript® is the current scripting engine.</td>
</tr>
<tr>
<td>VBA</td>
<td>Indicates that Microsoft Visual Basic for Applications is the current scripting engine.</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the ScriptEngine function to return a string describing the scripting language in use:

Function GetScriptEngineInfo
    Dim s
    s = "" ' Build string with necessary info.
s = *ScriptEngine* & " Version "
s = s & ScriptEngineMajorVersion & "."
s = s & ScriptEngineMinorVersion & "."
s = s & ScriptEngineBuildVersion
GetScriptEngineInfo = s  ' Return the results.
End Function
ScriptEngineBuildVersion Function

Description

Returns the build version number of the scripting engine in use.

Syntax

ScriptEngineBuildVersion

Remarks

The return value corresponds directly to the version information contained in the DLL for the scripting language in use.

The following example uses the ScriptEngineBuildVersion function to return the build version number of the scripting engine:

Function GetScriptEngineInfo
    Dim s
    s = "" ' Build string with necessary info.
    s = ScriptEngine & " Version "
    s = s & ScriptEngineMajorVersion & "."
    s = s & ScriptEngineMinorVersion & "."
    s = s & ScriptEngineBuildVersion
    GetScriptEngineInfo = s ' Return the results.
End Function
ScriptEngineMajorVersion Function

Description

Returns the major version number of the scripting engine in use.

Syntax

ScriptEngineMajorVersion

Remarks

The return value corresponds directly to the version information contained in the DLL for the scripting language in use.

The following example uses the ScriptEngineMajorVersion function to return the version number of the scripting engine:

Function GetScriptEngineInfo
    Dim s
    s = "" ' Build string with necessary info.
    s = ScriptEngine & " Version "
    s = s & ScriptEngineMajorVersion & "."
    s = s & ScriptEngineMinorVersion & "."
    s = s & ScriptEngineBuildVersion
    GetScriptEngineInfo = s ' Return the results.
End Function
**ScriptEngineMinorVersion** Function

**Description**

Returns the minor version number of the scripting engine in use.

**Syntax**

```
ScriptEngineMinorVersion
```

**Remarks**

The return value corresponds directly to the version information contained in the DLL for the scripting language in use.

The following example uses the `ScriptEngineMinorVersion` function to return the minor version number of the scripting engine:

```
Function GetScriptEngineInfo
    Dim s
    s = "" ' Build string with necessary info.
    s = ScriptEngine & " Version "
    s = s & ScriptEngineMajorVersion & "."
    s = s & ScriptEngineMinorVersion & "."
    s = s & ScriptEngineBuildVersion
    GetScriptEngineInfo = s ' Return the results.
End Function
```
Second Function

Description

Returns a whole number between 0 and 59, inclusive, representing the second of the minute.

Syntax

Second(time)

The time argument is any expression that can represent a time. If time contains Null, Null is returned.

Remarks

The following example uses the Second function to return the current second:

Dim MySec
MySec = Second(Now) ' MySec contains the number representing the current second.
Select Case Statement

Description

Executes one of several groups of statements, depending on the value of an expression.

Syntax

```vbnet
Select Case testexpression
    [Case expressionlist-n
        [statements-n]]
    .
    [Case Else expressionlist-n
        [elsestatements-n]]
End Select
```

The `Select Case` statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>testexpression</code></td>
<td>Any numeric or string expression.</td>
</tr>
<tr>
<td><code>expressionlist-n</code></td>
<td>Required if <code>Case</code> appears. Delimited list of one or more expressions.</td>
</tr>
<tr>
<td><code>statements-n</code></td>
<td>One or more statements executed if <code>testexpression</code> matches any part of <code>expressionlist-n</code>.</td>
</tr>
<tr>
<td><code>elsestatements-n</code></td>
<td>One or more statements executed if <code>testexpression</code> doesn't match any of the <code>Case</code> clauses.</td>
</tr>
</tbody>
</table>

Remarks
If `testexpression` matches any **Case expressionlist** expression, the statements following that **Case** clause are executed up to the next **Case** clause, or for the last clause, up to **End Select**. Control then passes to the statement following **End Select**. If `testexpression` matches an **expressionlist** expression in more than one **Case** clause, only the statements following the first match are executed.

The **Case Else** clause is used to indicate the else statements to be executed if no match is found between the `testexpression` and an **expressionlist** in any of the other **Case** selections. Although not required, it is a good idea to have a **Case Else** statement in your **Select Case** block to handle unforeseen `testexpression` values. If no **Case expressionlist** matches `testexpression` and there is no **Case Else** statement, execution continues at the statement following **End Select**.

**Select Case** statements can be nested. Each nested **Select Case** statement must have a matching **End Select** statement.

The following example illustrates the use of the **Select Case** statement:

```vba
Dim Color, MyVar
Sub ChangeBackgroundColor (Color)
    MyVar = lcase (Color)
    Select Case MyVar
        Case "red"    document.bgColor = "red"
        Case "green"  document.bgColor = "green"
        Case "blue"   document.bgColor = "blue"
        Case Else     MsgBox "pick another color"
    End Select
End Sub
```
### Description

Assigns an object reference to a variable or property, or associates a procedure reference with an event.

### Syntax 1

\[
\text{Set } \text{objectvar} = \{\text{objectexpression} | \text{New classname} | \text{Nothing}\}
\]

### Syntax 2

\[
\text{Set } \text{object.eventname} = \text{GetRef(procname)}
\]

The **Set** statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>objectvar</td>
<td>Required. Name of the variable or property; follows standard variable naming conventions.</td>
</tr>
<tr>
<td>objectexpression</td>
<td>Optional. Expression consisting of the name of an object, another declared variable of the same object type, or a function or method that returns an object of the same object type.</td>
</tr>
<tr>
<td>New</td>
<td>Keyword used to create a new instance of a class. If objectvar contained a reference to an object, that reference is released when the new one is assigned. The <strong>New</strong> keyword can only be used to create an instance of a class.</td>
</tr>
<tr>
<td>classname</td>
<td>Optional. Name of the class being created. A class and its members are defined using the <strong>Class</strong> statement.</td>
</tr>
<tr>
<td>Nothing</td>
<td>Optional. Discontinues association of objectvar with any specific object or class. Assigning objectvar to <strong>Nothing</strong> releases all the system and memory resources associated with the previously referenced object when no other variable refers to it.</td>
</tr>
<tr>
<td>object</td>
<td>Required. Name of the object with which event is associated.</td>
</tr>
<tr>
<td>event</td>
<td>Required. Name of the event to which the function is to be bound.</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>proname</td>
<td>Required. String containing the name of the Sub or Function being associated with the event.</td>
</tr>
</tbody>
</table>

**Remarks**

To be valid, `objectvar` must be an object type consistent with the object being assigned to it.

The **Dim**, **Private**, **Public**, or **ReDim** statements only declare a variable that refers to an object. No actual object is referred to until you use the **Set** statement to assign a specific object.

Generally, when you use **Set** to assign an object reference to a variable, no copy of the object is created for that variable. Instead, a reference to the object is created. More than one object variable can refer to the same object. Because these variables are references to (rather than copies of) the object, any change in the object is reflected in all variables that refer to it.

```vbscript
Function ShowFreeSpace(drvPath)
    Dim fso, d, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(fso.GetDriveName(drvPath))
    s = "Drive " & UCase(drvPath) & " - "
    s = s & d.VolumeName & "<BR>"
    s = s & "Free Space: " & FormatNumber(d.FreeSpace/1024, 0)
    s = s & " Kbytes"
    ShowFreeSpace = s
End Function
```

Using the **New** keyword allows you to concurrently create an instance of a class and assign it to an object reference variable. The variable to which the instance of the class is being assigned
must already have been declared with the **Dim** (or equivalent) statement.

Refer to the documentation for the **GetRef** function for information on using **Set** to associate a procedure with an event.
Function Sgn

See Also

Description

Returns an integer indicating the sign of a number.

Syntax

\texttt{Sgn(\textit{number})}

The \textit{number} argument can be any valid numeric expression.

Return Values

The \textit{Sgn} function has the following return values:

<table>
<thead>
<tr>
<th>If \textit{number} is</th>
<th>\textit{Sgn} returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than zero</td>
<td>1</td>
</tr>
<tr>
<td>Equal to zero</td>
<td>0</td>
</tr>
<tr>
<td>Less than zero</td>
<td>-1</td>
</tr>
</tbody>
</table>

Remarks

The sign of the \textit{number} argument determines the return value of the \textit{Sgn} function.

The following example uses the \textit{Sgn} function to determine the sign of a number:

\begin{verbatim}
Dim MyVar1, MyVar2, MyVar3, MySign
MyVar1 = 12: MyVar2 = -2.4: MyVar3 = 0
MySign = Sgn(MyVar1) ' Returns 1.
\end{verbatim}
MySign = \texttt{Sgn(MyVar2)} ' Returns -1.
MySign = \texttt{Sgn(MyVar3)} ' Returns 0.
Sin Function

See Also

Description

Returns the sine of an angle.

Syntax

Sin(number)

The number argument can be any valid numeric expression that expresses an angle in radians.

Remarks

The Sin function takes an angle and returns the ratio of two sides of a right triangle. The ratio is the length of the side opposite the angle divided by the length of the hypotenuse. The result lies in the range -1 to 1.

To convert degrees to radians, multiply degrees by pi/180. To convert radians to degrees, multiply radians by 180/pi.

The following example uses the Sin function to return the sine of an angle:

Dim MyAngle, MyCosecant
MyAngle = 1.3  ' Define angle in radians
MyCosecant = 1 / Sin(MyAngle)  ' Calculate cosecant
**Source Property**

**Description**

Returns or sets the name of the object or application that originally generated the error.

**Syntax**

```
object.Source [= stringexpression]
```

The **Source** property syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Always the <strong>Err</strong> object.</td>
</tr>
<tr>
<td>stringexpression</td>
<td>A <strong>string expression</strong> representing the application that generated the error.</td>
</tr>
</tbody>
</table>

**Remarks**

The **Source** property specifies a string expression that is usually the **class** name or programmatic ID of the object that caused the error. Use **Source** to provide your users with information when your code is unable to handle an error generated in an accessed object. For example, if you access Microsoft Excel and it generates a *Division by zero* error, Microsoft Excel sets **Err.Number** to its error code for that error and sets **Source** to Excel.Application. Note that if the error is generated in another object called by Microsoft Excel, Excel intercepts the error and sets **Err.Number** to its own code for *Division by zero*. However, it leaves the other **Err** object (including **Source**) as set by the object that generated the error.

**Source** always contains the name of the object that originally generated the error — your code can try to handle the error according to the error documentation of the object you accessed. If your error
handler fails, you can use the **Err** object information to describe the error to your user, using **Source** and the other **Err** to inform the user which object originally caused the error, its description of the error, and so forth.

When generating an error from code, **Source** is your application's programmatic ID.

The following code illustrates use of the **Source** property:

```vba
On Error Resume Next
Err.Raise 6  ' Raise an overflow error.
MsgBox ("Error # " & CStr(Err.Number) & " " & Err.Description & 
Err.Clear   ' Clear the error.
```
Function

**See Also**

**Description**

Returns a string consisting of the specified number of spaces.

**Syntax**

\[ \text{Space}(\text{number}) \]

The `number` argument is the number of spaces you want in the string.

**Remarks**

The following example uses the **Space** function to return a string consisting of a specified number of spaces:

```vbscript
Dim MyString
MyString = Space(10) ' Returns a string with 10 spaces.
MyString = "Hello" & Space(10) & "World" ' Insert 10 spaces between the strings.
```
**Function**

**See Also**

**Description**

Returns a zero-based, one-dimensional array containing a specified number of substrings.

**Syntax**

```plaintext
Split(expression[, delimiter[, count[, compare]]])
```

The `Split` function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>expression</code></td>
<td>Required. String expression containing substrings and delimiters. If <code>expression</code> is a zero-length string, <code>Split</code> returns an empty array, that is, an array with no elements and no data.</td>
</tr>
<tr>
<td><code>delimiter</code></td>
<td>Optional. String character used to identify substring limits. If omitted, the space character (&quot; &quot;) is assumed to be the delimiter. If <code>delimiter</code> is a zero-length string, a single-element array containing the entire <code>expression</code> string is returned.</td>
</tr>
<tr>
<td><code>count</code></td>
<td>Optional. Number of substrings to be returned; -1 indicates that all substrings are returned.</td>
</tr>
<tr>
<td><code>compare</code></td>
<td>Optional. Numeric value indicating the kind of comparison to use when evaluating substrings. See Settings section for values.</td>
</tr>
</tbody>
</table>

**Settings**
The *compare* argument can have the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbBinaryCompare</td>
<td>0</td>
<td>Perform a binary comparison.</td>
</tr>
<tr>
<td>vbTextCompare</td>
<td>1</td>
<td>Perform a textual comparison.</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the *Split* function to return an array from a string. The function performs a textual comparison of the delimiter, and returns all of the substrings.

```vbscript
Dim MyString, MyArray, Msg
MyString = "VBScriptXisXfun!"
MyArray = Split(MyString, "x", -1, 1)
' MyArray(0) contains "VBScript".
' MyArray(1) contains "is".
' MyArray(2) contains "fun!".
Msg = MyArray(0) & " " & MyArray(1)
Msg = Msg & " " & MyArray(2)
MsgBox Msg
```
Description

Returns the square root of a number.

Syntax

\[ \text{Sqr}(\text{number}) \]

The \textit{number} argument can be any valid \textit{numeric expression} greater than or equal to 0.

Remarks

The following example uses the \textit{Sqr} function to calculate the square root of a number:

\begin{verbatim}
Dim MySqr
MySqr = Sqr(4)   ' Returns 2.
MySqr = Sqr(23)  ' Returns 4.79583152331272.
MySqr = Sqr(0)   ' Returns 0.
MySqr = Sqr(-4)  ' Generates a run-time error.
\end{verbatim}
StrComp Function

Description

Returns a value indicating the result of a string comparison.

Syntax

**StrComp**(string1, string2[, compare])

The **StrComp** function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>string1</td>
<td>Required. Any valid string expression.</td>
</tr>
<tr>
<td>string2</td>
<td>Required. Any valid string expression.</td>
</tr>
<tr>
<td>compare</td>
<td>Optional. Numeric value indicating the kind of comparison to use when evaluating strings. If omitted, a binary comparison is performed. See Settings section for values.</td>
</tr>
</tbody>
</table>

Settings

The **compare** argument can have the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>vbBinaryCompare</strong></td>
<td>0</td>
<td>Perform a binary comparison.</td>
</tr>
<tr>
<td><strong>vbTextCompare</strong></td>
<td>1</td>
<td>Perform a textual comparison.</td>
</tr>
</tbody>
</table>

Return Values
The `StrComp` function has the following return values:

<table>
<thead>
<tr>
<th>If</th>
<th>StrComp returns</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>string1</code> is less than <code>string2</code></td>
<td>-1</td>
</tr>
<tr>
<td><code>string1</code> is equal to <code>string2</code></td>
<td>0</td>
</tr>
<tr>
<td><code>string1</code> is greater than <code>string2</code></td>
<td>1</td>
</tr>
<tr>
<td><code>string1</code> or <code>string2</code> is Null</td>
<td>Null</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the `StrComp` function to return the results of a string comparison. If the third argument is 1, a textual comparison is performed; if the third argument is 0 or omitted, a binary comparison is performed.

```plaintext
Dim MyStr1, MyStr2, MyComp
MyStr1 = "ABCD": MyStr2 = "abcd" ' Define 
MyComp = StrComp(MyStr1, MyStr2, 1) ' Return 
MyComp = StrComp(MyStr1, MyStr2, 0) ' Return 
MyComp = StrComp(MyStr2, MyStr1) ' Return 
```
Since these constants are built into VBScript, you don't have to define them before using them. Use them anywhere in your code to represent the values shown for each.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbCr</td>
<td>Chr(13)</td>
<td>Carriage return.</td>
</tr>
<tr>
<td>vbCrLf</td>
<td>Chr(13) &amp; Chr(10)</td>
<td>Carriage return–linefeed combination.</td>
</tr>
<tr>
<td>vbFormFeed</td>
<td>Chr(12)</td>
<td>Form feed; not useful in Microsoft Windows.</td>
</tr>
<tr>
<td>vbLf</td>
<td>Chr(10)</td>
<td>Line feed.</td>
</tr>
<tr>
<td>vbNewLine</td>
<td>Chr(13) &amp; Chr(10) or Chr(10)</td>
<td>Platform-specific newline character; whatever is appropriate for the platform.</td>
</tr>
<tr>
<td>vbNullChar</td>
<td>Chr(0)</td>
<td>Character having the value 0.</td>
</tr>
<tr>
<td>vbNullString</td>
<td>String having value 0</td>
<td>Not the same as a zero-length string (&quot;&quot;); used for calling external procedures.</td>
</tr>
<tr>
<td>vbTab</td>
<td>Chr(9)</td>
<td>Horizontal tab.</td>
</tr>
<tr>
<td>vbVerticalTab</td>
<td>Chr(11)</td>
<td>Vertical tab; not useful in Microsoft Windows.</td>
</tr>
</tbody>
</table>
String Function

See Also

Description

Returns a repeating character string of the length specified.

Syntax

String(number, character)

The String function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>number</td>
<td>Length of the returned string. If number contains Null, Null is returned.</td>
</tr>
<tr>
<td>character</td>
<td>Character code specifying the character or string expression whose first character is used to build the return string. If character contains Null, Null is returned.</td>
</tr>
</tbody>
</table>

Remarks

If you specify a number for character greater than 255, String converts the number to a valid character code using the formula:

\[
\text{character} \mod 256
\]

The following example uses the String function to return repeating character strings of the length specified:
Dim MyString
MyString = String(5, "*")   ' Returns "*****".
MyString = String(5, 42)    ' Returns "*****".
MyString = String(10, "ABC")  ' Returns "AAAA"
StrReverse Function

Description

Returns a string in which the character order of a specified string is reversed.

Syntax

**StrReverse(string1)**

The *string1* argument is the string whose characters are to be reversed. If *string1* is a zero-length string (""), a zero-length string is returned. If *string1* is **Null**, an error occurs.

Remarks

The following example uses the **StrReverse** function to return a string in reverse order:

```vbnet
Dim MyStr
MyStr = StrReverse("VBScript") ' MyStr contains "tpircSBV"
```
**Description**

Declares the name, arguments, and code that form the body of a **Sub** procedure.

**Syntax**

```
[Public [Default] | Private] Sub name [(arglist)]
    [statements]
    [Exit Sub]
    [statements]
End Sub
```

The **Sub** statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Indicates that the <strong>Sub</strong> procedure is accessible to all other procedures in all scripts.</td>
</tr>
<tr>
<td>Default</td>
<td>Used only with the <strong>Public</strong> keyword in a <strong>Class</strong> block to indicate that the <strong>Sub</strong> procedure is the default method for the <strong>class</strong>. An error occurs if more than one <strong>Default</strong> procedure is specified in a class.</td>
</tr>
<tr>
<td>Private</td>
<td>Indicates that the <strong>Sub</strong> procedure is accessible only to other procedures in the script where it is declared.</td>
</tr>
<tr>
<td>name</td>
<td>Name of the <strong>Sub</strong>; follows standard <strong>variable</strong> naming conventions.</td>
</tr>
<tr>
<td>arglist</td>
<td>List of variables representing arguments that are passed to the <strong>Sub</strong> procedure when it is called. Multiple variables are separated by commas.</td>
</tr>
<tr>
<td>statements</td>
<td>Any group of statements to be executed within the body of the <strong>Sub</strong> procedure.</td>
</tr>
</tbody>
</table>

The **arglist** argument has the following syntax and parts:
[ByVal | ByRef] varname[( )]

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ByVal</td>
<td>Indicates that the argument is passed by value.</td>
</tr>
<tr>
<td>ByRef</td>
<td>Indicates that the argument is passed by reference.</td>
</tr>
<tr>
<td>varname</td>
<td>Name of the variable representing the argument; follows standard variable naming conventions.</td>
</tr>
</tbody>
</table>

Remarks

If not explicitly specified using either Public or Private, Sub procedures are public by default, that is, they are visible to all other procedures in your script. The value of local variables in a Sub procedure is not preserved between calls to the procedure.

You can't define a Sub procedure inside any other procedure (e.g. Function or Property Get).

The Exit Sub statement causes an immediate exit from a Sub procedure. Program execution continues with the statement that follows the statement that called the Sub procedure. Any number of Exit Sub statements can appear anywhere in a Sub procedure.

Like a Function procedure, a Sub procedure is a separate procedure that can take arguments, perform a series of statements, and change the value of its arguments. However, unlike a Function procedure, which returns a value, a Sub procedure can't be used in an expression.

You call a Sub procedure using the procedure name followed by the argument list. See the Call statement for specific information on how to call Sub procedures.

---

Caution Sub procedures can be recursive, that is, they can call themselves to perform a given
task. However, recursion can lead to stack overflow.

Variables used in **Sub** procedures fall into two categories: those that are explicitly declared within the procedure and those that are not. Variables that are explicitly declared in a procedure (using **Dim** or the equivalent) are always local to the procedure. Variables that are used but not explicitly declared in a procedure are also local, unless they are explicitly declared at some higher level outside the procedure.

**Caution** A procedure can use a variable that is not explicitly declared in the procedure, but a naming conflict can occur if anything you have defined at the script level has the same name. If your procedure refers to an undeclared variable that has the same name as another procedure, **constant** or variable, it is assumed that your procedure is referring to that script-level name. To avoid this kind of conflict, use an **Option Explicit** statement to force explicit declaration of variables.
**Description**

Returns the tangent of an angle.

**Syntax**

```vbnet
Tan(number)
```

The `number` argument can be any valid numeric expression that expresses an angle in radians.

**Remarks**

Tan takes an angle and returns the ratio of two sides of a right triangle. The ratio is the length of the side opposite the angle divided by the length of the side adjacent to the angle.

To convert degrees to radians, multiply degrees by \( \pi/180 \). To convert radians to degrees, multiply radians by \( 180/\pi \).

The following example uses the **Tan** function to return the tangent of an angle:

```vbnet
Dim MyAngle, MyCotangent
MyAngle = 1.3                          ' Define angle in radians
MyCotangent = 1 / Tan(MyAngle)         ' Calculate cotangent
```
Terminates Event

**Description**

Occurs when an instance of the associated class is terminated.

**Syntax**

```vbscript
Private Sub Class_Terminate()
    statements
End Sub
```

The `statements` part consists of zero or more code statements to be run when the class is initialized.

**Remarks**

The following example illustrates the use of the `Terminate` event:

```vbscript
Class TestClass
    Private Sub Class_Initialize ' Setup Initialize event.
        MsgBox("TestClass started")
    End Sub

    Private Sub Class_Terminate ' Setup Terminate event.
        MsgBox("TestClass terminated")
    End Sub
End Class
```
Set X = New TestClass  ' Create an instance of TestClass.
Set X = Nothing       ' Destroy the instance.
### Description

Executes a regular expression search against a specified string and returns a **Boolean** value that indicates if a pattern match was found.

### Syntax

```
object.Test(string)
```

The **Execute** method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a RegExp object.</td>
</tr>
<tr>
<td>string</td>
<td>Required. The text string upon which the regular expression is executed.</td>
</tr>
</tbody>
</table>

### Remarks

The actual pattern for the regular expression search is set using the **Pattern** property of the **RegExp** object. The **RegExp.Global** property has no effect on the **Test** method.

The **Test** method returns **True** if a pattern match is found; **False** if no match is found.

The following code illustrates the use of the **Test** method:
Function RegExpTest(patrn, strng)
    Dim regEx, retVal ' Create variable.
    Set regEx = New RegExp ' Create regular expression.
    regEx.Pattern = patrn ' Set pattern.
    regEx.IgnoreCase = False ' Set case sensitivity.
    retVal = regEx.Test(strng) ' Execute the search test.
    If retVal Then
        RegExpTest = "One or more matches were found."
    Else
        RegExpTest = "No match was found."
    End If
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
Time Function

Description

Returns a **Variant** of subtype **Date** indicating the current system time.

Syntax

```
Time
```

Remarks

The following example uses the **Time** function to return the current system time:

```
Dim MyTime
MyTime = Time ' Return current system time.
```
Description

Returns the number of seconds that have elapsed since 12:00 AM (midnight).

Syntax

**Timer**

Remarks

The following example uses the **Timer** function to determine the time it takes to iterate a **For...Next** loop $N$ times:

```vbnet
Function TimeIt(N)
    Dim StartTime, EndTime
    StartTime = Timer
    For I = 1 To N
        Next
    EndTime = Timer
    TimeIt = EndTime - StartTime
End Function
```
TimeSerial Function

Description

Returns a Variant of subtype Date containing the time for a specific hour, minute, and second.

Syntax

**TimeSerial**(hour, minute, second)

The `TimeSerial` function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>hour</td>
<td>Number between 0 (12:00 A.M.) and 23 (11:00 P.M.), inclusive, or a numeric expression.</td>
</tr>
<tr>
<td>minute</td>
<td>Any numeric expression.</td>
</tr>
<tr>
<td>second</td>
<td>Any numeric expression.</td>
</tr>
</tbody>
</table>

Remarks

To specify a time, such as 11:59:59, the range of numbers for each `TimeSerial` argument should be in the accepted range for the unit; that is, 0–23 for hours and 0–59 for minutes and seconds. However, you can also specify relative times for each argument using any numeric expression that represents some number of hours, minutes, or seconds before or after a certain time.

The following example uses expressions instead of absolute time numbers. The `TimeSerial` function returns a time for 15 minutes before (-15) six hours before noon (12 - 6), or 5:45:00 A.M.

```
Dim MyTime1
```
MyTime1 = TimeSerial(12 - 6, -15, 0) ' Returns 5:45:00 AM

When any argument exceeds the accepted range for that argument, it increments to the next larger unit as appropriate. For example, if you specify 75 minutes, it is evaluated as one hour and 15 minutes. However, if any single argument is outside the range -32,768 to 32,767, or if the time specified by the three arguments, either directly or by expression, causes the date to fall outside the acceptable range of dates, an error occurs.
**TimeValue Function**

**Description**

Returns a **Variant** of subtype **Date** containing the time.

**Syntax**

```
TimeValue(time)
```

The `time` argument is usually a string expression representing a time from 0:00:00 (12:00:00 A.M.) to 23:59:59 (11:59:59 P.M.), inclusive. However, `time` can also be any expression that represents a time in that range. If `time` contains **Null**, **Null** is returned.

**Remarks**

You can enter valid times using a 12-hour or 24-hour clock. For example, "2:24PM" and "14:24" are both valid `time` arguments. If the `time` argument contains date information, **TimeValue** doesn't return the date information. However, if `time` includes invalid date information, an error occurs.

The following example uses the **TimeValue** function to convert a string to a time. You can also use **date literals** to directly assign a time to a **Variant** (for example, MyTime = #4:35:17 PM#).

```
Dim MyTime
MyTime = TimeValue("4:35:17 PM")  ' MyTime contains 4:35:17 PM.
```
See Also

Description

The **True** keyword has a value equal to -1.
TypeName
Function

See Also

Description

Returns a string that provides Variant subtype information about a variable.

Syntax

TypeName(varname)

The required varname argument can be any variable.

Return Values

The TypeName function has the following return values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byte</td>
<td>Byte value</td>
</tr>
<tr>
<td>Integer</td>
<td>Integer value</td>
</tr>
<tr>
<td>Long</td>
<td>Long integer value</td>
</tr>
<tr>
<td>Single</td>
<td>Single-precision floating-point value</td>
</tr>
<tr>
<td>Double</td>
<td>Double-precision floating-point value</td>
</tr>
<tr>
<td>Currency</td>
<td>Currency value</td>
</tr>
<tr>
<td>Decimal</td>
<td>Decimal value</td>
</tr>
<tr>
<td>Date</td>
<td>Date or time value</td>
</tr>
<tr>
<td>String</td>
<td>Character string value</td>
</tr>
<tr>
<td>Boolean</td>
<td>Boolean value; True or False</td>
</tr>
<tr>
<td>Empty</td>
<td>Uninitialized</td>
</tr>
<tr>
<td>Null</td>
<td>No valid data</td>
</tr>
<tr>
<td><strong>&lt;object; type&gt;</strong></td>
<td>Actual type name of an object</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td><strong>Object</strong></td>
<td>Generic object</td>
</tr>
<tr>
<td><strong>Unknown</strong></td>
<td>Unknown object type</td>
</tr>
<tr>
<td><strong>Nothing</strong></td>
<td>Object variable that doesn't yet refer to an object instance</td>
</tr>
<tr>
<td><strong>Error</strong></td>
<td>Error</td>
</tr>
</tbody>
</table>

**Remarks**

The following example uses the **TypeName** function to return information about a variable:

```
Dim ArrayVar(4), MyType
NullVar = Null ' Assign Null value.

MyType = TypeName("VBScript") ' Returns "String".
MyType = TypeName(4) ' Returns "Integer".
MyType = TypeName(37.50) ' Returns "Double".
MyType = TypeName(NullVar) ' Returns "Null".
MyType = TypeName(ArrayVar) ' Returns "Variant()".
```
UBound Function

Description

Returns the largest available subscript for the indicated dimension of an array.

Syntax

$$\text{UBound} (\text{arrayname}[, \text{dimension}])$$

The UBound function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>arrayname</td>
<td>Required. Name of the array variable; follows standard variable naming conventions.</td>
</tr>
<tr>
<td>dimension</td>
<td>Optional. Whole number indicating which dimension's upper bound is returned. Use 1 for the first dimension, 2 for the second, and so on. If dimension is omitted, 1 is assumed.</td>
</tr>
</tbody>
</table>

Remarks

The UBound function is used with the LBound function to determine the size of an array. Use the LBound function to find the lower limit of an array dimension.

The lower bound for any dimension is always 0. As a result, UBound returns the following values for an array with these dimensions:

$$\text{Dim } A(100,3,4)$$
<table>
<thead>
<tr>
<th>Statement</th>
<th>Return Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>UBound(A, 1)</td>
<td>100</td>
</tr>
<tr>
<td>UBound(A, 2)</td>
<td>3</td>
</tr>
<tr>
<td>UBound(A, 3)</td>
<td>4</td>
</tr>
</tbody>
</table>
**Function**

**See Also**

**Description**

Returns a string that has been converted to uppercase.

**Syntax**

```
UCase(string)
```

The `string` argument is any valid string expression. If `string` contains `Null`, `Null` is returned.

**Remarks**

Only lowercase letters are converted to uppercase; all uppercase letters and nonletter characters remain unchanged.

The following example uses the `UCase` function to return an uppercase version of a string:

```
Dim MyWord
MyWord = UCase("Hello World")  ' Returns "HELLO WORLD"
```
**Value Property**

**Description**

Returns the value or text of a match found in a search string.

**Syntax**

```
object.Value
```

The `object` argument is always a `Match` object.

**Remarks**

The following code illustrates the use of the `Value` property:

```vbscript
Function RegExpTest(pattern, string)
    Dim regEx, Match, Matches
    Set regEx = New RegExp
    regEx.Pattern = pattern
    regEx.IgnoreCase = True
    regEx.Global = True
    Set Matches = regEx.Execute(string)
    For Each Match in Matches
        RetStr = RetStr & "Match " & I & " found at position " & Match.FirstIndex & ". Match Value is " & Match.Value & "."
    Next
End Function
```
Next
  RegExpTest = RetStr
End Function

MsgBox(RegExpTest("is.", "IS1 is2 IS3 is4"))
These constants are only available when your project has an explicit reference to the appropriate type library containing these constant definitions. For VBScript, you must explicitly declare these constants in your code.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbEmpty</td>
<td>0</td>
<td>Uninitialized (default)</td>
</tr>
<tr>
<td>vbNull</td>
<td>1</td>
<td>Contains no valid data</td>
</tr>
<tr>
<td>vbInteger</td>
<td>2</td>
<td>Integer subtype</td>
</tr>
<tr>
<td>vbLong</td>
<td>3</td>
<td>Long subtype</td>
</tr>
<tr>
<td>vbSingle</td>
<td>4</td>
<td>Single subtype</td>
</tr>
<tr>
<td>vbSingle</td>
<td>5</td>
<td>Double subtype</td>
</tr>
<tr>
<td>vbCurrency</td>
<td>6</td>
<td>Currency subtype</td>
</tr>
<tr>
<td>vbDate</td>
<td>7</td>
<td>Date subtype</td>
</tr>
<tr>
<td>vbString</td>
<td>8</td>
<td>String subtype</td>
</tr>
<tr>
<td>vbObject</td>
<td>9</td>
<td>Object</td>
</tr>
<tr>
<td>vbError</td>
<td>10</td>
<td>Error subtype</td>
</tr>
<tr>
<td>vbBoolean</td>
<td>11</td>
<td>Boolean subtype</td>
</tr>
<tr>
<td>vbVariant</td>
<td>12</td>
<td>Variant (used only for arrays of variants)</td>
</tr>
<tr>
<td>vbDataObject</td>
<td>13</td>
<td>Data access object</td>
</tr>
<tr>
<td>vbDecimal</td>
<td>14</td>
<td>Decimal subtype</td>
</tr>
<tr>
<td>vbByte</td>
<td>17</td>
<td>Byte subtype</td>
</tr>
<tr>
<td>vbArray</td>
<td>8192</td>
<td>Array</td>
</tr>
</tbody>
</table>
VarType Function

See Also

Description

Returns a value indicating the subtype of a variable.

Syntax

\texttt{VarType(varname)}

The \textit{varname} argument can be any variable.

Return Values

The \texttt{VarType} function returns the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbEmpty</td>
<td>0</td>
<td>\texttt{Empty} (uninitialized)</td>
</tr>
<tr>
<td>vbNull</td>
<td>1</td>
<td>\texttt{Null} (no valid data)</td>
</tr>
<tr>
<td>vbInteger</td>
<td>2</td>
<td>Integer</td>
</tr>
<tr>
<td>vbLong</td>
<td>3</td>
<td>Long integer</td>
</tr>
<tr>
<td>vbSingle</td>
<td>4</td>
<td>Single-precision floating-point number</td>
</tr>
<tr>
<td>vbDouble</td>
<td>5</td>
<td>Double-precision floating-point number</td>
</tr>
<tr>
<td>vbCurrency</td>
<td>6</td>
<td>Currency</td>
</tr>
<tr>
<td>vbDate</td>
<td>7</td>
<td>Date</td>
</tr>
<tr>
<td>vbString</td>
<td>8</td>
<td>String</td>
</tr>
<tr>
<td>vbObject</td>
<td>9</td>
<td>Automation object</td>
</tr>
<tr>
<td>vbError</td>
<td>10</td>
<td>Error</td>
</tr>
<tr>
<td>vbBoolean</td>
<td>11</td>
<td>Boolean</td>
</tr>
<tr>
<td>vbVariant</td>
<td>12</td>
<td>Variant (used only with arrays of Variants)</td>
</tr>
<tr>
<td>vbDataObject</td>
<td>13</td>
<td>A data-access object</td>
</tr>
<tr>
<td>--------------</td>
<td>----</td>
<td>----------------------</td>
</tr>
<tr>
<td>vbByte</td>
<td>17</td>
<td>Byte</td>
</tr>
<tr>
<td>vbArray</td>
<td>8192</td>
<td>Array</td>
</tr>
</tbody>
</table>

**Note** These constants are specified by VBScript. As a result, the names can be used anywhere in your code in place of the actual values.

**Remarks**

The **VarType** function never returns the value for Array by itself. It is always added to some other value to indicate an array of a particular type. The value for Variant is only returned when it has been added to the value for Array to indicate that the argument to the **VarType** function is an array. For example, the value returned for an array of integers is calculated as $2 + 8192$, or $8194$. If an object has a default property, **VarType** *(object)* returns the type of its default property.

The following example uses the **VarType** function to determine the subtype of a variable.

```vbscript
Dim MyCheck
MyCheck = VarType(300)          ' Returns 2.
MyCheck = VarType(#10/19/62#)   ' Returns 7.
MyCheck = VarType("VBScript")  ' Returns 8.
```
A number of useful constants you can use in your code are built into VBScript. Constants provide a convenient way to use specific values without actually having to remember the value itself. Using constants also makes your code more maintainable should the value of any constant ever change. Because these constants are already defined in VBScript, you don't need to explicitly declare them in your code. Simply use them in place of the values they represent.

Here are the various categories of constants provided in VBScript and a brief description of each:

- **Color Constants**
  Defines eight basic colors that can be used in scripting.

- **Date and Time Constants**
  Defines date and time constants used by various date and time functions.

- **Date Format Constants**
  Defines constants used to format dates and times.

- **Miscellaneous Constants**
  Defines constants that don't conveniently fit into any other category.

- **MsgBox Constants**
  Defines constants used in the(MsgBox) function to describe button visibility, labeling, behavior, and return values.

- **String Constants**
  Defines a variety of non-printable characters used in string manipulation.

- **Tristate Constants**
  Defines constants used with functions that format numbers.

- **VarType Constants**
  Defines the various Variant subtypes.
Weekday Function

See Also

Description

Returns a whole number representing the day of the week.

Syntax

\[ \text{Weekday}(date, [firstdayofweek]) \]

The Weekday function syntax has these arguments:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>date</td>
<td>Any expression that can represent a date. If date contains Null, Null is returned.</td>
</tr>
<tr>
<td>firstdayofweek</td>
<td>A constant that specifies the first day of the week. If omitted, vbSunday is assumed.</td>
</tr>
</tbody>
</table>

Settings

The firstdayofweek argument has these settings:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbUseSystem</td>
<td>0</td>
<td>Use National Language Support (NLS) API setting.</td>
</tr>
<tr>
<td>vbSunday</td>
<td>1</td>
<td>Sunday</td>
</tr>
<tr>
<td>vbMonday</td>
<td>2</td>
<td>Monday</td>
</tr>
<tr>
<td>vbTuesday</td>
<td>3</td>
<td>Tuesday</td>
</tr>
<tr>
<td>vbWednesday</td>
<td>4</td>
<td>Wednesday</td>
</tr>
<tr>
<td>vbThursday</td>
<td>5</td>
<td>Thursday</td>
</tr>
<tr>
<td>vbFriday</td>
<td>6</td>
<td>Friday</td>
</tr>
<tr>
<td>vbSaturday</td>
<td>7</td>
<td>Saturday</td>
</tr>
</tbody>
</table>
Return Values

The **Weekday** function can return any of these values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbSunday</td>
<td>1</td>
<td>Sunday</td>
</tr>
<tr>
<td>vbMonday</td>
<td>2</td>
<td>Monday</td>
</tr>
<tr>
<td>vbTuesday</td>
<td>3</td>
<td>Tuesday</td>
</tr>
<tr>
<td>vbWednesday</td>
<td>4</td>
<td>Wednesday</td>
</tr>
<tr>
<td>vbThursday</td>
<td>5</td>
<td>Thursday</td>
</tr>
<tr>
<td>vbFriday</td>
<td>6</td>
<td>Friday</td>
</tr>
<tr>
<td>vbSaturday</td>
<td>7</td>
<td>Saturday</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the **Weekday** function to obtain the day of the week from a specified date:

```vba
Dim MyDate, MyWeekDay
MyDate = #October 19, 1962#  ' Assign a date.
MyWeekDay = Weekday(MyDate)  ' MyWeekDay contains 6 bec
   ' MyDate represents a Friday.
```
**While...Wend Statement**

**Description**

Executes a series of statements as long as a given condition is **True**.

**Syntax**

```plaintext
While condition
    Version [statements]
Wend
```

The `While...Wend` statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>condition</code></td>
<td>Numeric or string expression that evaluates to <strong>True</strong> or <strong>False</strong>. If <code>condition</code> is <strong>Null</strong>, <code>condition</code> is treated as <strong>False</strong>.</td>
</tr>
<tr>
<td><code>statements</code></td>
<td>One or more statements executed while condition is <strong>True</strong>.</td>
</tr>
</tbody>
</table>

**Remarks**

If `condition` is **True**, all statements in `statements` are executed until the `Wend` statement is encountered. Control then returns to the `While` statement and `condition` is again checked. If `condition` is still **True**, the process is repeated. If it is not **True**, execution resumes with the statement following the `Wend` statement.

`While...Wend` loops can be nested to any level. Each `Wend` matches the most recent `While`.
Tip  The **Do...Loop** statement provides a more structured and flexible way to perform looping.

The following example illustrates use of the **While...Wend** statement:

```vba
Dim Counter
Counter = 0 ' Initialize variable.
While Counter < 20 ' Test value of Counter.
    Counter = Counter + 1 ' Increment Counter.
    Alert Counter
Wend ' End While loop when Counte
Description

Executes a series of statements on a single object.

Syntax

```
With object
    statements
End With
```

The `With` statement syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Name of an object or a function that returns an object.</td>
</tr>
<tr>
<td><code>statements</code></td>
<td>Required. One or more statements to be executed on <code>object</code>.</td>
</tr>
</tbody>
</table>

Remarks

The `With` statement allows you to perform a series of statements on a specified object without requalifying the name of the object. For example, to change a number of different `properties` on a single object, place the property assignment statements within the `With` control structure, referring to the object once instead of referring to it with each property assignment. The following example illustrates use of the `With` statement to assign values to several properties of the same object.
With MyLabel
  .Height = 2000
  .Width = 2000
  .Caption = "This is MyLabel"
End With

While property manipulation is an important aspect of With functionality, it is not the only use. Any legal code can be used within a With block.

**Note** Once a With block is entered, object can't be changed. As a result, you can't use a single With statement to affect a number of different objects.

You can nest With statements by placing one With block within another. However, because members of outer With blocks are masked within the inner With blocks, you must provide a fully qualified object reference in an inner With block to any member of an object in an outer With block.

**Important** Do not jump into or out of With blocks. If statements in a With block are executed, but either the With or End With statement is not executed, you may get errors or unpredictable behavior.
Xor Operator

Description

Performs a logical exclusion on two expressions.

Syntax

\[ \text{result} = \text{expression1} \text{ Xor } \text{expression2} \]

The **Xor** operator syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>expression1</td>
<td>Any expression.</td>
</tr>
<tr>
<td>expression2</td>
<td>Any expression.</td>
</tr>
</tbody>
</table>

Remarks

If one, and only one, of the expressions evaluates to **True**, \( \text{result} \) is **True**. However, if either expression is **Null**, \( \text{result} \) is also **Null**. When neither expression is **Null**, \( \text{result} \) is determined according to the following table:

<table>
<thead>
<tr>
<th>If ( \text{expression1} ) is</th>
<th>And ( \text{expression2} ) is</th>
<th>Then ( \text{result} ) is</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>True</td>
<td>False</td>
</tr>
<tr>
<td>True</td>
<td>False</td>
<td>True</td>
</tr>
<tr>
<td>False</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>False</td>
<td>False</td>
<td>False</td>
</tr>
</tbody>
</table>

The **Xor** operator also performs a [bitwise comparison](#) of identically
positioned bits in two numeric expressions and sets the corresponding bit in result according to the following table:

<table>
<thead>
<tr>
<th>If bit in expression1 is</th>
<th>And bit in expression2 is</th>
<th>Then result is</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
**Function**

Returns a whole number representing the year.

**Syntax**

`Year(date)`

The `date` argument is any expression that can represent a date. If `date` contains `Null`, `Null` is returned.

**Remarks**

The following example uses the `Year` function to obtain the year from a specified date:

```vbscript
Dim MyDate, MyYear
MyDate = #October 19, 1962#  ' Assign a date.
MyYear = Year(MyDate)        ' MyYear contains 1962.
```
Since these constants are built into VBScript, you don't have to define them before using them. Use them anywhere in your code to represent the values shown for each.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbBlack</td>
<td>&amp;h00;</td>
<td>Black</td>
</tr>
<tr>
<td>vbRed</td>
<td>&amp;hFF;</td>
<td>Red</td>
</tr>
<tr>
<td>vbGreen</td>
<td>&amp;hFF00;</td>
<td>Green</td>
</tr>
<tr>
<td>vbYellow</td>
<td>&amp;hFFFF;</td>
<td>Yellow</td>
</tr>
<tr>
<td>vbBlue</td>
<td>&amp;hFF0000;</td>
<td>Blue</td>
</tr>
<tr>
<td>vbMagenta</td>
<td>&amp;hFF00FF;</td>
<td>Magenta</td>
</tr>
<tr>
<td>vbCyan</td>
<td>&amp;hFFFF00;</td>
<td>Cyan</td>
</tr>
<tr>
<td>vbWhite</td>
<td>&amp;hFFFFFF;</td>
<td>White</td>
</tr>
</tbody>
</table>
Tristate Constants

See Also

Since these constants are built into VBScript, you don't have to define them before using them. Use them anywhere in your code to represent the values shown for each.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbUseDefault</td>
<td>-2</td>
<td>Use default from computer's regional settings.</td>
</tr>
<tr>
<td>vbTrue</td>
<td>-1</td>
<td>True</td>
</tr>
<tr>
<td>vbFalse</td>
<td>0</td>
<td>False</td>
</tr>
</tbody>
</table>
## VBScript Run-time Errors

### VBScript Syntax Errors

<table>
<thead>
<tr>
<th>Error Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Invalid procedure call or argument</td>
</tr>
<tr>
<td>6</td>
<td>Overflow</td>
</tr>
<tr>
<td>7</td>
<td>Out of memory</td>
</tr>
<tr>
<td>9</td>
<td>Subscript out of range</td>
</tr>
<tr>
<td>10</td>
<td>This array is fixed or temporarily locked</td>
</tr>
<tr>
<td>11</td>
<td>Division by zero</td>
</tr>
<tr>
<td>13</td>
<td>Type mismatch</td>
</tr>
<tr>
<td>14</td>
<td>Out of string space</td>
</tr>
<tr>
<td>17</td>
<td>Can't perform requested operation</td>
</tr>
<tr>
<td>28</td>
<td>Out of stack space</td>
</tr>
<tr>
<td>35</td>
<td>Sub or Function not defined</td>
</tr>
<tr>
<td>48</td>
<td>Error in loading DLL</td>
</tr>
<tr>
<td>51</td>
<td>Internal error</td>
</tr>
<tr>
<td>52</td>
<td>Bad file name or number</td>
</tr>
<tr>
<td>53</td>
<td>File not found</td>
</tr>
<tr>
<td>54</td>
<td>Bad file mode</td>
</tr>
<tr>
<td>55</td>
<td>File already open</td>
</tr>
<tr>
<td>57</td>
<td>Device I/O error</td>
</tr>
<tr>
<td>58</td>
<td>File already exists</td>
</tr>
<tr>
<td>61</td>
<td>Disk full</td>
</tr>
<tr>
<td>62</td>
<td>Input past end of file</td>
</tr>
<tr>
<td>67</td>
<td>Too many files</td>
</tr>
<tr>
<td>68</td>
<td>Device unavailable</td>
</tr>
<tr>
<td>70</td>
<td>Permission denied</td>
</tr>
<tr>
<td>71</td>
<td>Disk not ready</td>
</tr>
<tr>
<td>74</td>
<td>Can't rename with different drive</td>
</tr>
<tr>
<td>75</td>
<td>Path/File access error</td>
</tr>
<tr>
<td>76</td>
<td>Path not found</td>
</tr>
<tr>
<td>Error Code</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>91</td>
<td>Object variable not set</td>
</tr>
<tr>
<td>92</td>
<td>For loop not initialized</td>
</tr>
<tr>
<td>94</td>
<td>Invalid use of Null</td>
</tr>
<tr>
<td>322</td>
<td>Can't create necessary temporary file</td>
</tr>
<tr>
<td>424</td>
<td>Object required</td>
</tr>
<tr>
<td>429</td>
<td>ActiveX component can't create object</td>
</tr>
<tr>
<td>430</td>
<td>Class doesn't support Automation</td>
</tr>
<tr>
<td>432</td>
<td>File name or class name not found during Automation operation</td>
</tr>
<tr>
<td>438</td>
<td>Object doesn't support this property or method</td>
</tr>
<tr>
<td>440</td>
<td>Automation error</td>
</tr>
<tr>
<td>445</td>
<td>Object doesn't support this action</td>
</tr>
<tr>
<td>446</td>
<td>Object doesn't support named arguments</td>
</tr>
<tr>
<td>447</td>
<td>Object doesn't support current locale setting</td>
</tr>
<tr>
<td>448</td>
<td>Named argument not found</td>
</tr>
<tr>
<td>449</td>
<td>Argument not optional</td>
</tr>
<tr>
<td>450</td>
<td>Wrong number of arguments or invalid property assignment</td>
</tr>
<tr>
<td>451</td>
<td>Object not a collection</td>
</tr>
<tr>
<td>453</td>
<td>Specified DLL function not found</td>
</tr>
<tr>
<td>455</td>
<td>Code resource lock error</td>
</tr>
<tr>
<td>458</td>
<td>Variable uses an Automation type not supported in VBScript</td>
</tr>
<tr>
<td>462</td>
<td>The remote server machine does not exist or is unavailable</td>
</tr>
<tr>
<td>481</td>
<td>Invalid picture</td>
</tr>
<tr>
<td>500</td>
<td>Variable is undefined</td>
</tr>
<tr>
<td>501</td>
<td>Illegal assignment</td>
</tr>
<tr>
<td>502</td>
<td>Object not safe for scripting</td>
</tr>
<tr>
<td>503</td>
<td>Object not safe for initializing</td>
</tr>
<tr>
<td>504</td>
<td>Object not safe for creating</td>
</tr>
<tr>
<td>505</td>
<td>Invalid or unqualified reference</td>
</tr>
<tr>
<td>506</td>
<td>Class not defined</td>
</tr>
<tr>
<td>507</td>
<td>An exception occurred</td>
</tr>
<tr>
<td>5016</td>
<td>Regular Expression object expected</td>
</tr>
<tr>
<td>5017</td>
<td>Syntax error in regular expression</td>
</tr>
<tr>
<td>5018</td>
<td>Unexpected quantifier</td>
</tr>
<tr>
<td>5019</td>
<td>Expected ']' in regular expression</td>
</tr>
<tr>
<td>5020</td>
<td>Expected ')' in regular expression</td>
</tr>
<tr>
<td>5021</td>
<td>Invalid range in character set</td>
</tr>
<tr>
<td>32811</td>
<td>Element not found</td>
</tr>
</tbody>
</table>
## VBScript Run-time Errors

<table>
<thead>
<tr>
<th>Error Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001</td>
<td>Out of memory</td>
</tr>
<tr>
<td>1002</td>
<td>Syntax error</td>
</tr>
<tr>
<td>1003</td>
<td>Expected ':'</td>
</tr>
<tr>
<td>1005</td>
<td>Expected '('</td>
</tr>
<tr>
<td>1006</td>
<td>Expected ')'</td>
</tr>
<tr>
<td>1007</td>
<td>Expected ']'</td>
</tr>
<tr>
<td>1010</td>
<td>Expected identifier</td>
</tr>
<tr>
<td>1011</td>
<td>Expected '='</td>
</tr>
<tr>
<td>1012</td>
<td>Expected 'If'</td>
</tr>
<tr>
<td>1013</td>
<td>Expected 'To'</td>
</tr>
<tr>
<td>1014</td>
<td>Expected 'End'</td>
</tr>
<tr>
<td>1015</td>
<td>Expected 'Function'</td>
</tr>
<tr>
<td>1016</td>
<td>Expected 'Sub'</td>
</tr>
<tr>
<td>1017</td>
<td>Expected 'Then'</td>
</tr>
<tr>
<td>1018</td>
<td>Expected 'Wend'</td>
</tr>
<tr>
<td>1019</td>
<td>Expected 'Loop'</td>
</tr>
<tr>
<td>1020</td>
<td>Expected 'Next'</td>
</tr>
<tr>
<td>1021</td>
<td>Expected 'Case'</td>
</tr>
<tr>
<td>1022</td>
<td>Expected 'Select'</td>
</tr>
<tr>
<td>1023</td>
<td>Expected expression</td>
</tr>
<tr>
<td>1024</td>
<td>Expected statement</td>
</tr>
<tr>
<td>1025</td>
<td>Expected end of statement</td>
</tr>
<tr>
<td>1026</td>
<td>Expected integer constant</td>
</tr>
<tr>
<td>1027</td>
<td>Expected 'While' or 'Until'</td>
</tr>
<tr>
<td>1028</td>
<td>Expected 'While', 'Until' or end of statement</td>
</tr>
<tr>
<td>1029</td>
<td>Expected 'With'</td>
</tr>
<tr>
<td>1030</td>
<td>Identifier too long</td>
</tr>
<tr>
<td>1031</td>
<td>Invalid number</td>
</tr>
<tr>
<td>Error Code</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>1032</td>
<td>Invalid character</td>
</tr>
<tr>
<td>1033</td>
<td>Unterminated string constant</td>
</tr>
<tr>
<td>1034</td>
<td>Unterminated comment</td>
</tr>
<tr>
<td>1037</td>
<td>Invalid use of 'Me' keyword</td>
</tr>
<tr>
<td>1038</td>
<td>'Loop' without 'do'</td>
</tr>
<tr>
<td>1039</td>
<td>Invalid 'exit' statement</td>
</tr>
<tr>
<td>1040</td>
<td>Invalid 'for' loop control variable</td>
</tr>
<tr>
<td>1041</td>
<td>Name redefined</td>
</tr>
<tr>
<td>1042</td>
<td>Must be first statement on the line</td>
</tr>
<tr>
<td>1043</td>
<td>Cannot assign to non-ByVal argument</td>
</tr>
<tr>
<td>1044</td>
<td>Cannot use parentheses when calling a Sub</td>
</tr>
<tr>
<td>1045</td>
<td>Expected literal constant</td>
</tr>
<tr>
<td>1046</td>
<td>Expected 'In'</td>
</tr>
<tr>
<td>1047</td>
<td>Expected 'Class'</td>
</tr>
<tr>
<td>1048</td>
<td>Must be defined inside a Class</td>
</tr>
<tr>
<td>1049</td>
<td>Expected Let or Set or Get in property declaration</td>
</tr>
<tr>
<td>1050</td>
<td>Expected 'Property'</td>
</tr>
<tr>
<td>1051</td>
<td>Number of arguments must be consistent across properties specification</td>
</tr>
<tr>
<td>1052</td>
<td>Cannot have multiple default property/method in a Class</td>
</tr>
<tr>
<td>1053</td>
<td>Class initialize or terminate do not have arguments</td>
</tr>
<tr>
<td>1054</td>
<td>Property set or let must have at least one argument</td>
</tr>
<tr>
<td>1055</td>
<td>Unexpected 'Next'</td>
</tr>
<tr>
<td>1056</td>
<td>'Default' can be specified only on 'Property' or 'Function' or 'Sub'</td>
</tr>
<tr>
<td>1057</td>
<td>'Default' specification must also specify 'Public'</td>
</tr>
<tr>
<td>1058</td>
<td>'Default' specification can only be on Property Get</td>
</tr>
</tbody>
</table>
Comparison Operators

Description

Used to compare expressions.

Syntax

\[ \text{result} = \text{expression1 comparisonoperator expression2} \]

\[ \text{result} = \text{object1 Is object2} \]

Comparison operators have these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>result</td>
<td>Any numeric variable.</td>
</tr>
<tr>
<td>expression</td>
<td>Any \text{expression}.</td>
</tr>
<tr>
<td>comparisonoperator</td>
<td>Any \text{comparison operator}.</td>
</tr>
<tr>
<td>object</td>
<td>Any object name.</td>
</tr>
</tbody>
</table>

Remarks

The \text{Is} operator has specific comparison functionality that differs from the operators in the following table. The following table contains a list of the comparison operators and the conditions that determine whether \text{result} is \text{True}, \text{False}, or \text{Null}:

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
<th>True if</th>
<th>False if</th>
<th>Null if</th>
</tr>
</thead>
</table>

Microsoft® Visual Basic® Scripting Edition

Language Reference

Version 1
When comparing two expressions, you may not be able to easily determine whether the expressions are being compared as numbers or as strings.

The following table shows how expressions are compared or what results from the comparison, depending on the underlying subtype:

<table>
<thead>
<tr>
<th>If</th>
<th>Then</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both expressions are numeric</td>
<td>Perform a numeric comparison.</td>
</tr>
<tr>
<td>Both expressions are strings</td>
<td>Perform a string comparison.</td>
</tr>
<tr>
<td>One expression is numeric and the other is a string</td>
<td>The numeric expression is less than the string expression.</td>
</tr>
<tr>
<td>One expression is <strong>Empty</strong> and the other is numeric</td>
<td>Perform a numeric comparison, using 0 as the Empty expression.</td>
</tr>
<tr>
<td>One expression is <strong>Empty</strong> and the other is a string</td>
<td>Perform a string comparison, using a zero-length string (&quot;&quot;&quot;) as the <strong>Empty</strong> expression.</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Both expressions are <strong>Empty</strong></td>
<td>The expressions are equal.</td>
</tr>
</tbody>
</table>
Welcome to the VBScript Language Reference

These handy blocks of information will help you explore the many different parts of the Visual Basic Scripting language.

You'll find all the parts of the VBScript language listed alphabetically under the Alphabetic Keyword List. But if you want to examine just one category, say, objects, each language category has its own, more compact section.

How's it work? Click on one of the headings to the left to display a list of items contained in that category. From this list, select the topic that you want to view. Once you've opened that topic, you can easily link to other related sections.

So, go ahead and take a look! Study some statements, mull over the methods, or figure out a few functions. You'll see just how versatile the VBScript language can be!
Add Method (Dictionary)

Description

 Adds a key and item pair to a Dictionary object.

Syntax

\[ \text{object}.\text{Add key, item} \]

The Add method has the following parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a Dictionary object.</td>
</tr>
<tr>
<td>key</td>
<td>Required. The key associated with the item being added.</td>
</tr>
<tr>
<td>item</td>
<td>Required. The item associated with the key being added.</td>
</tr>
</tbody>
</table>

Remarks

An error occurs if the key already exists.

The following example illustrates the use of the Add method:

```vbs
Dim d ' Create a variable.
Set d = CreateObject("Scripting.Dictionary")
d.Add "a", "Athens" ' Add some keys and items.
d.Add "b", "Belgrade"
d.Add "c", "Cairo"
```
Add Method (Folders)

Add Method (Folders)

Description

Adds a new **Folder** to a **Folders** collection.

Syntax

```plaintext
object.Add(folderName)
```

The `Add` method has the following parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <strong>Folders</strong> collection.</td>
</tr>
<tr>
<td><code>folderName</code></td>
<td>Required. The name of the new <strong>Folder</strong> being added.</td>
</tr>
</tbody>
</table>

Remarks

The following example illustrates the use of the `Add` method to add a new folder:

```vba
Sub AddNewFolder(path, folderName)
    Dim fso, f, fc, nf
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(path)
    Set fc = f.SubFolders
    If folderName <> "" Then
        Set nf = fc.Add(folderName)
    Else
        Set nf = fc.Add("New Folder")
```
End If
End Sub

An error occurs if *folderName* already exists.
AtEndOfLine Property

Description

Returns **True** if the file pointer immediately precedes the end-of-line marker in a `TextStream` file; **False** if it is not. Read-only.

Syntax

```
object.AtEndOfLine
```

The `object` is always the name of a `TextStream` object.

Remarks

The **AtEndOfLine** property applies only to `TextStream` files that are open for reading; otherwise, an error occurs.

The following code illustrates the use of the **AtEndOfLine** property:

```
Function ReadEntireFile(filespec)
    Const ForReading = 1
    Dim fso, theFile, retstring
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set theFile = fso.OpenTextFile(filespec, ForReading)
    Do While theFile.AtEndOfLine <> True
        retstring = theFile.Read(1)
    Loop

ReadEntireFile "C:\test.txt"
```

theFile.Close
ReadEntireFile = retstring
End Function
AtEndOfStream Property

Description

Returns **True** if the file pointer is at the end of a **TextStream** file; **False** if it is not. Read-only.

Syntax

```
object.AtEndOfStream
```

The `object` is always the name of a **TextStream** object.

Remarks

The **AtEndOfStream** property applies only to **TextStream** files that are open for reading, otherwise, an error occurs.

The following code illustrates the use of the **AtEndOfStream** property:

```
Function ReadEntireFile(filespec)
    Const ForReading = 1
    Dim fso, theFile, retstring
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set theFile = fso.OpenTextFile(filespec, ForReading, False)
    Do While theFile.AtEndOfStream <> True
        retstring = theFile.ReadLine
    Loop
```

theFile.Close
ReadEntireFile = retstring
End Function
Attributes Property

Description

Sets or returns the attributes of files or folders. Read/write or read-only, depending on the attribute.

Syntax

`object.Attributes [ = newattributes ]`

The Attributes property has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a File or Folder object.</td>
</tr>
<tr>
<td>newattributes</td>
<td>Optional. If provided, newattributes is the new value for the attributes of the specified object.</td>
</tr>
</tbody>
</table>

Settings

The newattributes argument can have any of the following values or any logical combination of the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0</td>
<td>Normal file. No attributes are set.</td>
</tr>
<tr>
<td>ReadOnly</td>
<td>1</td>
<td>Read-only file. Attribute is read/write.</td>
</tr>
<tr>
<td>Hidden</td>
<td>2</td>
<td>Hidden file. Attribute is read/write.</td>
</tr>
<tr>
<td>System</td>
<td>4</td>
<td>System file. Attribute is read/write.</td>
</tr>
<tr>
<td>Directory</td>
<td>16</td>
<td>Folder or directory. Attribute is read-only.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>Archive</td>
<td>32</td>
<td>File has changed since last backup. Attribute is read/write.</td>
</tr>
<tr>
<td>Alias</td>
<td>1024</td>
<td>Link or shortcut. Attribute is read-only.</td>
</tr>
<tr>
<td>Compressed</td>
<td>2048</td>
<td>Compressed file. Attribute is read-only.</td>
</tr>
</tbody>
</table>

**Remarks**

Attempts to change any of the read-only attributes (Alias, Compressed, or Directory) are ignored.

When setting attributes, it is generally a good idea to first read the current attributes, then change the individual attributes as desired, and finally write the attributes back.

The following code illustrates the use of the Attributes property with a file:

```vba
Function ToggleArchiveBit(filespec)
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    If f.attributes and 32 Then
        f.attributes = f.attributes - 32
        ToggleArchiveBit = "Archive bit is cleared."
    Else
        f.attributes = f.attributes + 32
        ToggleArchiveBit = "Archive bit is set."
    End If
End Function
```
AvailableSpace Property

Description

Returns the amount of space available to a user on the specified drive or network share.

Syntax

object.AvailableSpace

The object is always a Drive object.

Remarks

The value returned by the AvailableSpace property is typically the same as that returned by the FreeSpace property. Differences may occur between the two for computer systems that support quotas.

The following code illustrates the use of the AvailableSpace property:

Function ShowAvailableSpace(drvPath)
    Dim fso, d, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(fso.GetDriveName(drvPath))
    s = "Drive " & UCase(drvPath) & " - "
    s = s & d.VolumeName & "<BR>"
    s = s & "Available Space: " & FormatNumber(d.AvailableSpace/1024, 0) & " Kbytes"
    ShowAvailableSpace = s
End Function
BuildPath Method

Description

Appends a name to an existing path.

Syntax

\[ \text{object}.\text{BuildPath}(\text{path}, \text{name}) \]

The BuildPath method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{object}</td>
<td>Required. Always the name of a FileSystemObject.</td>
</tr>
<tr>
<td>\textit{path}</td>
<td>Required. Existing path to which name is appended. Path can be absolute or relative and need not specify an existing folder.</td>
</tr>
<tr>
<td>\textit{name}</td>
<td>Required. Name being appended to the existing path.</td>
</tr>
</tbody>
</table>

Remarks

The BuildPath method inserts an additional path separator between the existing path and the name, only if necessary.

The following example illustrates use of the BuildPath method:

```vbscript
Function GetBuildPath(path)
    Dim fso, newpath
    Set fso = CreateObject("Scripting.FileSystemObject")
    newpath = fso.BuildPath(path, "Sub Folder")
    GetBuildPath = newpath
End Function
```
End Function
**Close**

**Method**

**Description**

Closes an open **TextStream** file.

**Syntax**

```vbnet
object.Close
```

The `object` is always the name of a **TextStream** object.

**Remarks**

The following example illustrates use of the **Close** method to close an open **TextStream** file:

```vbnet
Sub CreateAFile
    Dim fso, MyFile
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set MyFile = fso.CreateTextFile("c:\testfile.txt", True)
    MyFile.WriteLine("This is a test.")
    MyFile.Close
End Sub
```
Column Property

Description

Read-only property that returns the column number of the current character position in a TextStream file.

Syntax

`object.Column`

The `object` is always the name of a TextStream object.

Remarks

After a newline character has been written, but before any other character is written, `Column` is equal to 1.

The following example illustrates use of the `Column` property:

```vbs
Function GetColumn
    Const ForReading = 1, ForWriting = 2
    Dim fso, f, m
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting, True)
    f.Write "Hello world!"
    f.Close
    Set f = fso.OpenTextFile("c:\testfile.txt", ForReading)
    m = f.ReadLine
End Function
```
GetColumn = f.Column
End Function
CompareMode Property

See Also Applies to

Description

Sets and returns the comparison mode for comparing string keys in a Dictionary object.

Syntax

`object.CompareMode = compare`

The CompareMode property has the following parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a Dictionary object.</td>
</tr>
<tr>
<td><code>compare</code></td>
<td>Optional. If provided, <code>compare</code> is a value representing the comparison mode used by functions such as StrComp.</td>
</tr>
</tbody>
</table>

Settings

The `compare` argument has the following settings:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>vbBinaryCompare</code></td>
<td>0</td>
<td>Perform a binary comparison.</td>
</tr>
<tr>
<td><code>vbTextCompare</code></td>
<td>1</td>
<td>Perform a textual comparison.</td>
</tr>
</tbody>
</table>

Remarks

Values greater than 2 can be used to refer to comparisons using specific
Locale IDs (LCID). An error occurs if you try to change the comparison mode of a **Dictionary** object that already contains data.

The **CompareMode** property uses the same values as the `compare` argument for the **StrComp** function.

The following example illustrates use of the **CompareMode** property:

```vbscript
Dim d
Set d = CreateObject("Scripting.Dictionary")
d.CompareMode = vbTextCompare
d.Add "a", "Athens" ' Add some keys and items
d.Add "b", "Belgrade"
d.Add "c", "Cairo"
d.Add "B", "Baltimore" ' Add method fails on this line because the letter b already exists in the Dictionary.
```
Copy Method

Description

Copies a specified file or folder from one location to another.

Syntax

\textit{object.Copy} destination[, overwrite]

The Copy method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a File or Folder object.</td>
</tr>
<tr>
<td>destination</td>
<td>Required. Destination where the file or folder is to be copied. Wildcard characters are not allowed.</td>
</tr>
<tr>
<td>overwrite</td>
<td>Optional. Boolean value that is \texttt{True} (default) if existing files or folders are to be overwritten; \texttt{False} if they are not.</td>
</tr>
</tbody>
</table>

Remarks

The results of the Copy method on a File or Folder are identical to operations performed using FileSystemObject.CopyFile or FileSystemObject.CopyFolder where the file or folder referred to by \textit{object} is passed as an argument. You should note, however, that the alternative methods are capable of copying multiple files or folders.

The following example illustrates use of the Copy method:

```vbscript
Dim fso, MyFile
```
Set fso = CreateObject("Scripting.FileSystemObject")
Set MyFile = fso.CreateTextFile("c:\testfile.txt", True)
MyFile.WriteLine("This is a test.")
MyFile.Close
Set MyFile = fso.GetFile("c:\testfile.txt")
MyFile.Copy ("c:\windows\desktop\test2.txt")
CopyFile Method

Description

Copies one or more files from one location to another.

Syntax

\[ \text{object.CopyFile source, destination[, overwrite]} \]

The \text{CopyFile} method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. The \text{object} is always the name of a FileSystemObject.</td>
</tr>
<tr>
<td>source</td>
<td>Required. Character string file specification, which can include wildcard characters, for one or more files to be copied.</td>
</tr>
<tr>
<td>destination</td>
<td>Required. Character string destination where the file or files from \text{source} are to be copied. Wildcard characters are not allowed.</td>
</tr>
<tr>
<td>overwrite</td>
<td>Optional. Boolean value that indicates if existing files are to be overwritten. If \text{True}, files are overwritten; if \text{False}, they are not. The default is \text{True}. Note that \text{CopyFile} will fail if \text{destination} has the read-only attribute set, regardless of the value of \text{overwrite}.</td>
</tr>
</tbody>
</table>

Remarks

Wildcard characters can only be used in the last path component of the \text{source} argument. For example, you can use:
FileSystemObject.CopyFile "c:\mydocuments\letters\*.doc", "c:\tempfolder"

But you can't use:

FileSystemObject.CopyFile "c:\mydocuments\*\R1??97.xls", "c:\tempfolder"

If source contains wildcard characters or destination ends with a path separator (\), it is assumed that destination is an existing folder in which to copy matching files. Otherwise, destination is assumed to be the name of a file to create. In either case, three things can happen when an individual file is copied.

- If destination does not exist, source gets copied. This is the usual case.
- If destination is an existing file, an error occurs if overwrite is False. Otherwise, an attempt is made to copy source over the existing file.
- If destination is a directory, an error occurs.

An error also occurs if a source using wildcard characters doesn't match any files. The CopyFile method stops on the first error it encounters. No attempt is made to roll back or undo any changes made before an error occurs.
CopyFolder Method

Description

Recursively copies a folder from one location to another.

Syntax

```vbnet
object.CopyFolder source, destination[, overwrite]
```

The `CopyFolder` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <code>FileSystemObject</code>.</td>
</tr>
<tr>
<td><code>source</code></td>
<td>Required. Character string folder specification, which can include wildcard characters, for one or more folders to be copied.</td>
</tr>
<tr>
<td><code>destination</code></td>
<td>Required. Character string destination where the folder and subfolders from <code>source</code> are to be copied. Wildcard characters are not allowed.</td>
</tr>
<tr>
<td><code>overwrite</code></td>
<td>Optional. Boolean value that indicates if existing folders are to be overwritten. If <code>True</code>, files are overwritten; if <code>False</code>, they are not. The default is <code>True</code>.</td>
</tr>
</tbody>
</table>

Remarks

Wildcard characters can only be used in the last path component of the `source` argument. For example, you can use:

```vbnet
FileSystemObject.CopyFolder "c:\mydocuments\letters\*", "c:\tempfolder"
```
But you can't use:

`FileSystemObject.CopyFolder "c:\mydocuments\*\*", "c:\tempfolder"`

If `source` contains wildcard characters or `destination` ends with a path separator (`\`), it is assumed that `destination` is an existing folder in which to copy matching folders and subfolders. Otherwise, `destination` is assumed to be the name of a folder to create. In either case, four things can happen when an individual folder is copied.

- If `destination` does not exist, the `source` folder and all its contents gets copied. This is the usual case.
- If `destination` is an existing file, an error occurs.
- If `destination` is a directory, an attempt is made to copy the folder and all its contents. If a file contained in `source` already exists in `destination`, an error occurs if `overwrite` is `False`. Otherwise, it will attempt to copy the file over the existing file.
- If `destination` is a read-only directory, an error occurs if an attempt is made to copy an existing read-only file into that directory and `overwrite` is `False`.

An error also occurs if a `source` using wildcard characters doesn't match any folders.

The `CopyFolder` method stops on the first error it encounters. No attempt is made to roll back any changes made before an error occurs.
Count Property

Description

Returns the number of items in a collection or Dictionary object. Read-only.

Syntax

object.Count

The object is always the name of one of the items in the Applies To list.

Remarks

The following code illustrates use of the Count property:

Function ShowKeys
    Dim a, d, i, s  ' Create some variables.
    Set d = CreateObject("Scripting.Dictionary")
    d.Add "a", "Athens"  ' Add some keys and items.
    d.Add "b", "Belgrade"
    d.Add "c", "Cairo"
    a = d.Keys  ' Get the keys.
    For i = 0 To d.Count - 1  ' Iterate the array.
        s = s & a(i) & "<BR>"  ' Create return string.
    Next
    ShowKeys = s
End Function
Description

Creates a folder.

Syntax

\[ \text{object}.\text{CreateFolder}(\text{foldername}) \]

The \textit{CreateFolder} method has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a \textit{FileSystemObject}.</td>
</tr>
<tr>
<td>foldername</td>
<td>Required. \textit{String expression} that identifies the folder to create.</td>
</tr>
</tbody>
</table>

Remarks

An error occurs if the specified folder already exists.

The following example illustrates use of the \textit{CreateFolder} method:

```vbscript
Function CreateFolderDemo
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.CreateFolder("c:\New Folder")
    CreateFolderDemo = f.Path
End Function
```
CreateTextFile Method

Description

Creates a specified file name and returns a TextStream object that can be used to read from or write to the file.

Syntax

\texttt{object.CreateTextFile(\textit{filename}[, overwrite[, unicode]])}

The \texttt{CreateTextFile} method has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a FileSystemObject or Folder object.</td>
</tr>
<tr>
<td>filename</td>
<td>Required. String expression that identifies the file to create.</td>
</tr>
<tr>
<td>overwrite</td>
<td>Optional. Boolean value that indicates if an existing file can be overwritten. The value is True if the file can be overwritten; False if it can't be overwritten. If omitted, existing files are not overwritten.</td>
</tr>
<tr>
<td>unicode</td>
<td>Optional. Boolean value that indicates whether the file is created as a Unicode or ASCII file. The value is True if the file is created as a Unicode file; False if it's created as an ASCII file. If omitted, an ASCII file is assumed.</td>
</tr>
</tbody>
</table>

Remarks

The following code illustrates how to use the \texttt{CreateTextFile} method to...
create and open a text file:

    Sub CreateAfile
        Dim fso, MyFile
        Set fso = CreateObject("Scripting.FileSystemObject")
        Set MyFile = fso.CreateTextFile("c:\testfile.txt", True)
        MyFile.WriteLine("This is a test.")
        MyFile.Close
    End Sub

If the **overwrite** argument is **False**, or is not provided, for a **filename** that already exists, an error occurs.
DateCreated Property

Description

Returns the date and time that the specified file or folder was created. Read-only.

Syntax

```
object.DateCreated
```

The `object` is always a File or Folder object.

Remarks

The following code illustrates the use of the `DateCreated` property with a file:

```vbnet
Function ShowFileInfo(filespec)
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    ShowFileInfo = "Created: " & f.DateCreated
End Function
```
DateLastAccessed Property

Description

Returns the date and time that the specified file or folder was last accessed. Read-only.

Syntax

`object.DateLastAccessed`

The `object` is always a `File` or `Folder` object.

Remarks

The following code illustrates the use of the `DateLastAccessed` property with a file:

```vbnet
Function ShowFileAccessInfo(filespec)
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    s = UCase(filespec) & "<BR>"
    s = s & "Created: " & f.DateCreated & "<BR>"
    s = s & "Last Accessed: " & f.DateLastAccessed & "<BR>"
    s = s & "Last Modified: " & f.DateLastModified
    ShowFileAccessInfo = s
End Function
```

Important  This method depends on the underlying operating system for its behavior.
If the operating system does not support providing time information, none will be returned.
**DateLastModified Property**

**Description**

Returns the date and time that the specified file or folder was last modified. Read-only.

**Syntax**

```
object.DateLastModified
```

The `object` is always a **File** or **Folder** object.

**Remarks**

The following code illustrates the use of the `DateLastModified` property with a file:

```vbnet
Function ShowFileAccessInfo(filespec)
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    s = UCase(filespec) & "<BR>"
    s = s & "Created: " & f.DateCreated & "<BR>"
    s = s & "Last Accessed: " & f.DateLastAccessed & "<BR>"
    s = s & "Last Modified: " & f.DateLastModified
    ShowFileAccessInfo = s
End Function
```
Delete Method

Description

 Deletes a specified file or folder.

Syntax

\texttt{object.Delete force}

The \texttt{Delete} method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{object}</td>
<td>Required. Always the name of a \texttt{File} or \texttt{Folder} object.</td>
</tr>
<tr>
<td>\texttt{force}</td>
<td>Optional. Boolean value that is \texttt{True} if files or folders with the read-only attribute set are to be deleted; \texttt{False} (default) if they are not.</td>
</tr>
</tbody>
</table>

Remarks

An error occurs if the specified file or folder does not exist. The \texttt{Delete} method does not distinguish between folders that have contents and those that do not. The specified folder is deleted regardless of whether or not it has contents.

The results of the \texttt{Delete} method on a \texttt{File} or \texttt{Folder} are identical to operations performed using \texttt{FileSystemObject.DeleteFile} or \texttt{FileSystemObject.DeleteFolder}.

The following example illustrates use of the \texttt{Delete} method:

\begin{verbatim}
Dim fso, MyFile
Set fso = CreateObject("Scripting.FileSystemObject")
\end{verbatim}
Set MyFile = fso.CreateTextFile("c:\testfile.txt", True)
MyFile.WriteLine("This is a test.")
MyFile.Close
Set MyFile = fso.GetFile("c:\testfile.txt")
MyFile.Delete
DeleteFile Method

See Also  Applies To

Description

Deletes a specified file.

Syntax

\[ \text{object}.\text{DeleteFile } \text{filespec}[, \text{force}] \]

The DeleteFile method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a FileSystemObject.</td>
</tr>
<tr>
<td>filespec</td>
<td>Required. The name of the file to delete. The filespec can contain wildcard characters in the last path component.</td>
</tr>
<tr>
<td>force</td>
<td>Optional. Boolean value that is True if files with the read-only attribute set are to be deleted; False (default) if they are not.</td>
</tr>
</tbody>
</table>

Remarks

An error occurs if no matching files are found. The DeleteFile method stops on the first error it encounters. No attempt is made to roll back or undo any changes that were made before an error occurred.

The following example illustrates use of the DeleteFile method:

Sub DeleteAFile(filespec)
    Dim fso
    Set fso = CreateObject("Scripting.FileSystemObject")
    fso.DeleteFile(filespec)
End Sub
fso.DeleteFile(filespec)
End Sub
DeleteFolder Method

Description

Deletes a specified folder and its contents.

Syntax

```
object.DeleteFolder folderspec[, force]
```

The `DeleteFolder` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a FileSystemObject.</td>
</tr>
<tr>
<td>folderspec</td>
<td>Required. The name of the folder to delete. The folderspec can contain wildcard characters in the last path component.</td>
</tr>
<tr>
<td>force</td>
<td>Optional. Boolean value that is <code>True</code> if folders with the read-only attribute set are to be deleted; <code>False</code> (default) if they are not.</td>
</tr>
</tbody>
</table>

Remarks

The `DeleteFolder` method does not distinguish between folders that have contents and those that do not. The specified folder is deleted regardless of whether or not it has contents.

An error occurs if no matching folders are found. The `DeleteFolder` method stops on the first error it encounters. No attempt is made to roll back or undo any changes that were made before an error occurred.

The following example illustrates use of the `DeleteFolder` method:
Sub DeleteAFolder(filespec)
    Dim fso
    Set fso = CreateObject("Scripting.FileSystemObject")
    fso.DeleteFolder(filespec)
End Sub
Dictionary Object

Description

Object that stores data key, item pairs.

Remarks

A Dictionary object is the equivalent of a PERL associative array. Items, which can be any form of data, are stored in the array. Each item is associated with a unique key. The key is used to retrieve an individual item and is usually a integer or a string, but can be anything except an array.

The following code illustrates how to create a Dictionary object:

```vbscript
Dim d ' Create a variable.
Set d = CreateObject("Scripting.Dictionary")
d.Add "a", "Athens" ' Add some keys and items.
d.Add "b", "Belgrade"
d.Add "c", "Cairo"
```

...
Drive Object

Description

Provides access to the properties of a particular disk drive or network share.

Remarks

The following code illustrates the use of the Drive object to access drive properties:

```vbscript
Function ShowFreeSpace(drvPath)
    Dim fso, d, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(fso.GetDriveName(drvPath))
    s = "Drive " & UCase(drvPath) & " - "
    s = s & d.VolumeName & "<BR>
    s = s & "Free Space: " & FormatNumber(d.FreeSpace/1024, 0)
    s = s & " Kbytes"
    ShowFreeSpace = s
End Function
```
Drive Property

See Also

Applies To

Description

Returns the drive letter of the drive on which the specified file or folder resides. Read-only.

Syntax

object.Drive

The object is always a File or Folder object.

Remarks

The following code illustrates the use of the Drive property:

```vbnet
Function ShowFileAccessInfo(filespec)
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    s = f.Name & " on Drive " & UCase(f.Drive) & "<BR>"
    s = s & "Created: " & f.DateCreated & "<BR>"
    s = s & "Last Accessed: " & f.DateLastAccessed & "<BR>"
    s = s & "Last Modified: " & f.DateLastModified
    ShowFileAccessInfo = s
End Function
```
DriveExists Method

Description

Returns **True** if the specified drive exists; **False** if it does not.

Syntax

```
object.DriveExists(drivespec)
```

The **DriveExists** method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a <strong>FileSystemObject</strong>.</td>
</tr>
<tr>
<td>drivespec</td>
<td>Required. A drive letter or a complete path specification.</td>
</tr>
</tbody>
</table>

Remarks

For drives with removable media, the **DriveExists** method returns **True** even if there are no media present. Use the **IsReady** property of the **Drive** object to determine if a drive is ready.

The following example illustrates use of the **DriveExists** method:

```
Function ReportDriveStatus(drv)
    Dim fso, msg
    Set fso = CreateObject("Scripting.FileSystemObject")
    If fso.DriveExists(drv) Then
        msg = ("Drive " & UCase(drv) & " exists.")
    Else
```

See Also

Applies To
msg = ("Drive " & UCase(drv) & " doesn't exist.")
End If
ReportDriveStatus = msg
End Function
DriveLetter Property

Description

Returns the drive letter of a physical local drive or a network share. Read-only.

Syntax

`object.DriveLetter`

The `object` is always a `Drive` object.

Remarks

The `DriveLetter` property returns a zero-length string (""") if the specified drive is not associated with a drive letter, for example, a network share that has not been mapped to a drive letter.

The following code illustrates the use of the `DriveLetter` property:

```vbs
Function ShowDriveLetter(drvPath)
    Dim fso, d, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(fso.GetDriveName(drvPath))
    s = "Drive " & d.DriveLetter & ": - "
    s = s & d.VolumeName & ": <BR>
    s = s & "Free Space: " & FormatNumber(d.FreeSpace/1024, 0) & " Kbytes"
    ShowDriveLetter = s
End Function
```
Drives Collection

Description

Read-only collection of all available drives.

Remarks

Removable-media drives need not have media inserted for them to appear in the Drives collection.

The following code illustrates how to get the Drives collection and iterate the collection using the For Each...Next statement:

Function ShowDriveList
    Dim fso, d, dc, s, n
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set dc = fso.Drives
    For Each d in dc
        n = ""
        s = s & d.DriveLetter & " - "
        If d.DriveType = Remote Then
            n = d.ShareName
        ElseIf d.IsReady Then
            n = d.VolumeName
        End If
        s = s & n & "<BR>"
    Next
    ShowDriveList = s
End Function
Drives Property

See Also

Applies To

Description

Returns a Drives collection consisting of all Drive objects available on the local machine.

Syntax

object.Drives

The object is always a FileSystemObject.

Remarks

Removable-media drives need not have media inserted for them to appear in the Drives collection.

You can iterate the members of the Drives collection using a For Each...Next construct as illustrated in the following code:

Function ShowDriveList
    Dim fso, d, dc, s, n
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set dc = fso.Drives
    For Each d in dc
        n = ""
        s = s & d.DriveLetter & " - "
        If d.DriveType = 3 Then
            n = d.ShareName
        ElseIf d.IsReady Then
            n = d.VolumeName
        End If
        ' Do something with drive information here...
    Next d
End Function
End If
    s = s & n & "<BR>"
Next
ShowDriveList = s
End Function
These constants are only available when your project has an explicit reference to the appropriate type library containing these constant definitions. For VBScript, you must explicitly declare these constants in your code.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>0</td>
<td>Drive type can't be determined.</td>
</tr>
<tr>
<td>Removable</td>
<td>1</td>
<td>Drive has removable media. This includes all floppy drives and many other varieties of storage devices.</td>
</tr>
<tr>
<td>Fixed</td>
<td>2</td>
<td>Drive has fixed (nonremovable) media. This includes all hard drives, including hard drives that are removable.</td>
</tr>
<tr>
<td>Remote</td>
<td>3</td>
<td>Network drives. This includes drives shared anywhere on a network.</td>
</tr>
<tr>
<td>CDROM</td>
<td>4</td>
<td>Drive is a CD-ROM. No distinction is made between read-only and read/write CD-ROM drives.</td>
</tr>
<tr>
<td>RAMDisk</td>
<td>5</td>
<td>Drive is a block of Random Access Memory (RAM) on the local computer that behaves like a disk drive.</td>
</tr>
</tbody>
</table>
DriveType Property

Description

Returns a value indicating the type of a specified drive.

Syntax

```vbnet
object.DriveType
```

The `object` is always a Drive object.

Remarks

The following code illustrates the use of the DriveType property:

```vbnet
Function ShowDriveType(drvpath)
    Dim fso, d, t
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(drvpath)
    Select Case d.DriveType
        Case 0: t = "Unknown"
        Case 1: t = "Removable"
        Case 2: t = "Fixed"
        Case 3: t = "Network"
        Case 4: t = "CD-ROM"
        Case 5: t = "RAM Disk"
    End Select
    ShowDriveType = "Drive " & d.DriveLetter & ": - " & t
End Function
```
**Exists Method**

**Description**

Returns **True** if a specified key exists in the **Dictionary** object, **False** if it does not.

**Syntax**

```
object.Exists(key)
```

The `Exists` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <code>Dictionary</code> object.</td>
</tr>
<tr>
<td><code>key</code></td>
<td>Required. <strong>Key</strong> value being searched for in the <code>Dictionary</code> object.</td>
</tr>
</tbody>
</table>

**Remarks**

The following example illustrates use of the `Exists` method:

```vbnet
Function KeyExistsDemo
    Dim d, msg
    ' Create some variables.
    Set d = CreateObject("Scripting.Dictionary")
    d.Add "a", "Athens"  ' Add some keys and items.
    d.Add "b", "Belgrade"
    d.Add "c", "Cairo"
    If d.Exists("c") Then
        msg = "Specified key exists."
    Else
```
msg = "Specified key doesn't exist."
End If
KeyExistsDemo = msg
End Function
These constants are only available when your project has an explicit reference to the appropriate type library containing these constant definitions. For VBScript, you must explicitly declare these constants in your code.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0</td>
<td>Normal file. No attributes are set.</td>
</tr>
<tr>
<td>ReadOnly</td>
<td>1</td>
<td>Read-only file.</td>
</tr>
<tr>
<td>Hidden</td>
<td>2</td>
<td>Hidden file.</td>
</tr>
<tr>
<td>System</td>
<td>4</td>
<td>System file.</td>
</tr>
<tr>
<td>Directory</td>
<td>16</td>
<td>Folder or directory.</td>
</tr>
<tr>
<td>Archive</td>
<td>32</td>
<td>File has changed since last backup.</td>
</tr>
<tr>
<td>Alias</td>
<td>1024</td>
<td>Link or shortcut.</td>
</tr>
<tr>
<td>Compressed</td>
<td>2048</td>
<td>Compressed file.</td>
</tr>
</tbody>
</table>
See Also

These constants are only available when your project has an explicit reference to the appropriate type library containing these constant definitions. For VBScript, you must explicitly declare these constants in your code.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ForReading</td>
<td>1</td>
<td>Open a file for reading only. You can't write to this file.</td>
</tr>
<tr>
<td>ForWriting</td>
<td>2</td>
<td>Open a file for writing. If a file with the same name exists, its previous contents are overwritten.</td>
</tr>
<tr>
<td>ForAppending</td>
<td>8</td>
<td>Open a file and write to the end of the file.</td>
</tr>
</tbody>
</table>
FileExists Method

Description

Returns **True** if a specified file exists; **False** if it does not.

Syntax

```
object.FileExists(filespec)
```

The **FileExists** method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description details</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a <strong>FileSystemObject</strong>.</td>
</tr>
<tr>
<td>filespec</td>
<td>Required. The name of the file whose existence is to be determined. A complete path specification (either absolute or relative) must be provided if the file isn't expected to exist in the current folder.</td>
</tr>
</tbody>
</table>

Remarks

The following example illustrates use of the **FileExists** method:

```vbscript
Function ReportFileStatus(filespec)
    Dim fso, msg
    Set fso = CreateObject("Scripting.FileSystemObject")
    If (fso.FileExists(filespec)) Then
        msg = filespec & " exists."
    Else
        msg = filespec & " doesn't exist."
    End If
    ReportFileStatus = msg
End Function
```
End Function
### File Object

**Description**

Provides access to all the properties of a file.

**Remarks**

The following code illustrates how to obtain a File object and how to view one of its properties.

```vi
Function ShowDateCreated(filespec)
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    ShowDateCreated = f.DateCreated
End Function
```

---
**Files Collection**

**See Also**  
**Properties**  
**Methods**

---

**Description**

*Collection* of all *File* objects within a folder.

**Remarks**

The following code illustrates how to get a *Files* collection and iterate the collection using the *For Each...Next* statement:

```vbnet
Function ShowFolderList(folderspec)
    Dim fso, f, f1, fc, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(folderspec)
    Set fc = f.Files
    For Each f1 in fc
        s = s & f1.name
        s = s & "<BR>"
    Next
    ShowFolderList = s
End Function
```

---
Files Property

See Also        Applies To

Description

Returns a Files collection consisting of all File objects contained in the specified folder, including those with hidden and system file attributes set.

Syntax

    object.Files

The object is always a Folder object.

Remarks

The following code illustrates the use of the Files property:

    Function ShowFileList(folderspec)
        Dim fso, f, f1, fc, s
        Set fso = CreateObject("Scripting.FileSystemObject")
        Set f = fso.GetFolder(folderspec)
        Set fc = f.Files
        For Each f1 in fc
            s = s & f1.name
            s = s & "<BR>"
        Next
        ShowFileList = s
    End Function
**FileSystemObject Object**

**Description**

Provides access to a computer's file system.

**Remarks**

The following code illustrates how the `FileSystemObject` is used to return a `TextStream` object that can be read from or written to:

```vbscript
Dim fso, MyFile
Set fso = CreateObject("Scripting.FileSystemObject")
Set MyFile = fso.CreateTextFile("c:\testfile.txt", True)
MyFile.WriteLine("This is a test.")
MyFile.Close
```

In the preceding code, the `CreateObject` function returns the `FileSystemObject` (`fso`). The `CreateTextFile` method then creates the file as a `TextStream` object (`MyFile`) and the `WriteLine` method writes a line of text to the created text file. The `Close` method flushes the buffer and closes the file.
**FileSystemObject** has a number of useful constants that you can use in your code. Constants provide a convenient way to use specific values without actually having to remember the value itself. They also makes your code more maintainable, should the value of any constant ever change.

Depending on your scripting host, these constants may be already defined. If so, simply use the constants anywhere in your code in place of the values they represent. In cases where SCRRUN.DLL is not explicitly referenced by your scripting host, you'll have to define these constants in your code before you can use them. Examples of this case include Microsoft Internet Explorer and Microsoft Internet Information Services (IIS).

The following list describes the various categories of constants provided for the **FileSystemObject**, along with a brief description:

- **DriveType Constants**
  Defines the various drive types available on the host computer, such as Fixed, Removable, CD-ROM, etc.

- **File Attribute Constants**
  Defines various file attributes such as Hidden, Read-Only, etc.

- **File Input/Output Constants**
  Defines constants used with file input and output.

- **SpecialFolder Constants**
  Defines special folders available in your operating system.
**FileSystem Property**

**Description**

Returns the type of file system in use for the specified drive.

**Syntax**

```vbnet
object.FileSystem
```

The *object* is always a *Drive* object.

**Remarks**

Available return types include FAT, NTFS, and CDFS.

The following code illustrates the use of the *FileSystem* property:

```vbnet
Function ShowFileSystemType(drvspec)
    Dim fso,d
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(drvspec)
    ShowFileSystemType = d.FileSystem
End Function
```
Folder Object

Description

Provides access to all the properties of a folder.

Remarks

The following code illustrates how to obtain a Folder object and how to return one of its properties:

```vbscript
Function ShowDateCreated(folderspec)
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(folderspec)
    ShowDateCreated = f.DateCreated
End Function
```
**Folders Collection**

**See Also**

**Properties**

**Methods**

---

**Description**

Collection of all **Folder** objects contained within a **Folder** object.

**Remarks**

The following code illustrates how to get a **Folders** collection and how to iterate the collection using the **For Each...Next** statement:

```vbnet
Function ShowFolderList(folderspec)
    Dim fso, f, f1, fc, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(folderspec)
    Set fc = f.SubFolders
    For Each f1 in fc
        s = s & f1.name
        s = s & "<BR>"
    Next
    ShowFolderList = s
End Function
```
FolderExists Method

Description

Returns **True** if a specified folder exists; **False** if it does not.

Syntax

```vbnet
object.FolderExists(folderspec)
```

The `FolderExists` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a <code>FileSystemObject</code>.</td>
</tr>
<tr>
<td>folderspec</td>
<td>Required. The name of the folder whose existence is to be determined. A complete path specification (either absolute or relative) must be provided if the folder isn't expected to exist in the current folder.</td>
</tr>
</tbody>
</table>

Remarks

The following example illustrates use of the `FolderExists` method:

```vbnet
Function ReportFolderStatus(fldr)
    Dim fso, msg
    Set fso = CreateObject("Scripting.FileSystemObject")
    If (fso.FolderExists(fldr)) Then
        msg = fldr & " exists."
    Else
        msg = fldr & " doesn't exist."
End Function
```
End If
ReportFolderStatus = msg
End Function
**FreeSpace Property**

**Description**

Returns the amount of free space available to a user on the specified drive or network share. Read-only.

**Syntax**

```
object.FreeSpace
```

The `object` is always a `Drive` object.

**Remarks**

The value returned by the `FreeSpace` property is typically the same as that returned by the `AvailableSpace` property. Differences may occur between the two for computer systems that support quotas.

The following code illustrates the use of the `FreeSpace` property:

```vbs
Function ShowFreeSpace(drvPath)
    Dim fso, d, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(fso.GetDriveName(drvPath))
    s = "Drive " & UCase(drvPath) & " - "
    s = s & d.VolumeName & "<BR>"
    s = s & "Free Space: " & FormatNumber(d.FreeSpace/1024, 0) & " Kbytes"
    ShowFreeSpace = s
End Function
```
GetAbsolutePathName Method

See Also          Applies To

Description

Returns a complete and unambiguous path from a provided path specification.

Syntax

\texttt{object. GetAbsolutePathName(pathspec)}

The GetAbsolutePathName method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a FileSystemObject.</td>
</tr>
<tr>
<td>pathspec</td>
<td>Required. Path specification to change to a complete and unambiguous path.</td>
</tr>
</tbody>
</table>

Remarks

A path is complete and unambiguous if it provides a complete reference from the root of the specified drive. A complete path can only end with a path separator character (\) if it specifies the root folder of a mapped drive.

Assuming the current directory is c:\mydocuments\reports, the following table illustrates the behavior of the GetAbsolutePathName method:

<table>
<thead>
<tr>
<th>pathspec</th>
<th>Returned path</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;c:&quot;</td>
<td>&quot;c:\mydocuments\reports&quot;</td>
</tr>
<tr>
<td>&quot;c:..&quot;</td>
<td>&quot;c:\mydocuments&quot;</td>
</tr>
<tr>
<td>&quot;c:\&quot;</td>
<td>&quot;c:&quot;</td>
</tr>
<tr>
<td>&quot;c:*.\may97&quot;</td>
<td>&quot;c:\mydocuments\reports*.\may97&quot;</td>
</tr>
<tr>
<td>&quot;region1&quot;</td>
<td>&quot;c:\mydocuments\reports\region1&quot;</td>
</tr>
<tr>
<td>&quot;c:....\mydocuments&quot;</td>
<td>&quot;c:\mydocuments&quot;</td>
</tr>
</tbody>
</table>
GetBaseName Method

Description

Returns a string containing the base name of the file (less any file extension), or folder in a provided path specification.

Syntax

object.GetBaseName(path)

The GetBaseName method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a FileSystemObject.</td>
</tr>
<tr>
<td>path</td>
<td>Required. The path specification for the file or folder whose base name is to be returned.</td>
</tr>
</tbody>
</table>

Remarks

The GetBaseName method returns a zero-length string (""") if no file or folder matches the path argument.

The following example illustrates use of the GetBaseName method:

Function GetTheBase(filespec)
    Dim fso
    Set fso = CreateObject("Scripting.FileSystemObject")
    GetTheBase = fso.GetBaseName(filespec)
End Function
**Note**  The **GetBaseName** method works only on the provided *path* string. It does not attempt to resolve the path, nor does it check for the existence of the specified path.
GetDrive Method

Description

Returns a Drive object corresponding to the drive in a specified path.

Syntax

object.GetDrive drivespec

The GetDrive method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a FileSystemObject.</td>
</tr>
<tr>
<td>drivespec</td>
<td>Required. The drivespec argument can be a drive letter (c), a drive letter with a colon appended (c:), a drive letter with a colon and path separator appended (c:), or any network share specification (\computer2\share1).</td>
</tr>
</tbody>
</table>

Remarks

For network shares, a check is made to ensure that the share exists.

An error occurs if drivespec does not conform to one of the accepted forms or does not exist. To call the GetDrive method on a normal path string, use the following sequence to get a string that is suitable for use as drivespec:

\[\text{DriveSpec} = \text{GetDriveName(GetAbsolutePathName(Path))}\]

The following example illustrates use of the GetDrive method:

Function ShowFreeSpace(drvPath)
    Dim fso, d, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    ...
Set d = fso.GetDrive(fso.GetDriveName(drvPath))
s = "Drive " & UCase(drvPath) & " - "
s = s & d.VolumeName & "<BR>"
s = s & "Free Space: " & FormatNumber(d.FreeSpace/1024, 0)
s = s & " Kbytes"
ShowFreeSpace = s
End Function
GetDriveName Method

See Also | Applies To
---------|--------------

Description

Returns a string containing the name of the drive for a specified path.

Syntax

```vbscript
object.GetDriveName(path)
```

The `GetDriveName` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <code>FileSystemObject</code>.</td>
</tr>
<tr>
<td><code>path</code></td>
<td>Required. The path specification for the component whose drive name is to be returned.</td>
</tr>
</tbody>
</table>

Remarks

The `GetDriveName` method returns a zero-length string ("") if the drive can't be determined.

The following example illustrates use of the `GetDriveName` method:

```vbscript
Function GetAName(DriveSpec)
    Dim fso
    Set fso = CreateObject("Scripting.FileSystemObject")
    GetAName = fso.GetDriveName(DriveSpec)
End Function
```
**Note** The `GetDriveName` method works only on the provided *path* string. It does not attempt to resolve the path, nor does it check for the existence of the specified path.
GetExtensionName Method

Description

Returns a string containing the extension name for the last component in a path.

Syntax

```
object.GetExtensionName(path)
```

The `GetExtensionName` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a <code>FileSystemObject</code>.</td>
</tr>
<tr>
<td>path</td>
<td>Required. The path specification for the component whose extension name is to be returned.</td>
</tr>
</tbody>
</table>

Remarks

For network drives, the root directory (`\`) is considered to be a component.

The `GetExtensionName` method returns a zero-length string (`""`) if no component matches the `path` argument.

The following example illustrates use of the `GetExtensionName` method:

```vbscript
Function GetAnExtension(DriveSpec)
    Dim fso
    Set fso = CreateObject("Scripting.FileSystemObject")
    GetAnExtension = fso.GetExtensionName(DriveSpec)
End Function
```
End Function
GetFile Method

Description

Returns a File object corresponding to the file in a specified path.

Syntax

\texttt{object.GetFile(filespec)}

The GetFile method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{object}</td>
<td>Required. Always the name of a FileSystemObject.</td>
</tr>
<tr>
<td>\texttt{filespec}</td>
<td>Required. The filespec is the path (absolute or relative) to a specific file.</td>
</tr>
</tbody>
</table>

Remarks

An error occurs if the specified file does not exist.

The following example illustrates use of the GetFile method:

\footnotesize

Function ShowFileAccessInfo(filespec)

\footnotesize

\begin{verbatim}
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    s = f.Path & "<br>"
    s = s & "Created: " & f.DateCreated & "<br>"
    s = s & "Last Accessed: " & f.DateLastAccessed & "<br>"
    s = s & "Last Modified: " & f.DateLastModified
    ShowFileAccessInfo = s
\end{verbatim}
End Function
GetFileName Method

Description

Returns the last file name or folder of a specified path that is not part of the drive specification.

Syntax

```
object.GetFileName(pathspec)
```

The `GetFileName` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <code>FileSystemObject</code>.</td>
</tr>
<tr>
<td><code>pathspec</code></td>
<td>Required. The path (absolute or relative) to a specific file.</td>
</tr>
</tbody>
</table>

Remarks

The `GetFileName` method returns a zero-length string (""") if `pathspec` does not end with the named file or folder.

The following example illustrates use of the `GetFileName` method:

```
Function GetAName(DriveSpec)
    Dim fso
    Set fso = CreateObject("Scripting.FileSystemObject")
    GetAName = fso.GetFileName(DriveSpec)
End Function
```
**Note** The **GetFileName** method works only on the provided path string. It does not attempt to resolve the path, nor does it check for the existence of the specified path.
GetFileVersion Method

Description

Returns the version number of a specified file.

Syntax

\textit{object}.\textbf{GetFileVersion}(\textit{pathspec})

The \textbf{GetVersion} method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{object}</td>
<td>Required. Always the name of a \texttt{FileSystemObject}.</td>
</tr>
<tr>
<td>\textit{pathspec}</td>
<td>Required. The path (absolute or relative) to a specific file.</td>
</tr>
</tbody>
</table>

Remarks

The \textbf{GetFileVersion} method returns a zero-length string (""") if \textit{pathspec} does not end with the named file or if the file does not contain version information.

The following example illustrates use of the \textbf{GetFileVersion} method:

```vbscript
Function GetVersion(PathSpec)
    Dim fso, temp
    Set fso = CreateObject("Scripting.FileSystemObject")
    temp = fso.GetFileVersion(PathSpec)
    If Len(temp) Then
```

GetVersion = temp
Else
    GetVersion = "No version information available."
End If
End Function

---

**Note**  The GetFileVersion method works only on the provided path string. It does not attempt to resolve the path, nor does it check for the existence of the specified path.
**GetFolder Method**

**See Also**  
**Applies To**

---

**Description**

Returns a **Folder** object corresponding to the folder in a specified path.

**Syntax**

```vbnet
object.GetFolder(folderspec)
```

The `GetFolder` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <strong>FileSystemObject</strong>.</td>
</tr>
<tr>
<td><code>folderspec</code></td>
<td>Required. The <code>folderspec</code> is the path (absolute or relative) to a specific folder.</td>
</tr>
</tbody>
</table>

**Remarks**

An error occurs if the specified folder does not exist.

The following example illustrates the use of the `GetFolder` method to return a folder object:

```vbnet
Sub AddNewFolder(path, folderName)
    Dim fso, f, fc, nf
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(path)
    Set fc = f.SubFolders
    If folderName <> "" Then
        Set nf = fc.Add(folderName)
    End If
End Sub
```
Else
    Set nf = fc.Add("New Folder")
End If
End Sub
GetParentFolderName Method

Description

Returns a string containing the name of the parent folder of the last file or folder in a specified path.

Syntax

\textit{object}.\textbf{GetParentFolderName}(\textit{path})

The \textbf{GetParentFolderName} method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{object}</td>
<td>Required. Always the name of a \textbf{FileSystemObject}.</td>
</tr>
<tr>
<td>\textit{path}</td>
<td>Required. The path specification for the file or folder whose parent folder name is to be returned.</td>
</tr>
</tbody>
</table>

Remarks

The \textbf{GetParentFolderName} method returns a zero-length string ("") if there is no parent folder for the file or folder specified in the \textit{path} argument.

The following example illustrates use of the \textbf{GetParentFolderName} method:

\begin{verbatim}
Function GetTheParent(DriveSpec)
    Dim fso
    Set fso = CreateObject("Scripting.FileSystemObject")
    GetTheParent = fso.GetParentFolderName(DriveSpec)
End Function
\end{verbatim}
**Note** The **GetParentFolderName** method works only on the provided *path* string. It does not attempt to resolve the path, nor does it check for the existence of the specified path.
GetSpecialFolder Method

Description

Returns the special folder specified.

Syntax

\[ \textit{object}.\textbf{GetSpecialFolder}(\textit{folderspec}) \]

The \textbf{GetSpecialFolder} method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{object}</td>
<td>Required. Always the name of a \texttt{FileSystemObject}.</td>
</tr>
<tr>
<td>\textit{folderspec}</td>
<td>Required. The name of the special folder to be returned. Can be any of the constants shown in the Settings section.</td>
</tr>
</tbody>
</table>

Settings

The \textit{folderspec} argument can have any of the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{WindowsFolder}</td>
<td>0</td>
<td>The Windows folder contains files installed by the Windows operating system.</td>
</tr>
<tr>
<td>\texttt{SystemFolder}</td>
<td>1</td>
<td>The System folder contains libraries, fonts, and device drivers.</td>
</tr>
<tr>
<td>\texttt{TemporaryFolder}</td>
<td>2</td>
<td>The Temp folder is used to store temporary files. Its path is found in the TMP environment variable.</td>
</tr>
</tbody>
</table>
Remarks

The following example illustrates use of the GetSpecialFolder method:

```vbscript
Dim fso, tempfile
Set fso = CreateObject("Scripting.FileSystemObject")

Function CreateTempFile
  Dim tfolder, tname, tfile
  Const TemporaryFolder = 2
  Set tfolder = fso.GetSpecialFolder(TemporaryFolder)
  tname = fso.GetTempName
  Set tfile = tfolder.CreateTextFile(tname)
  Set CreateTempFile = tfile
End Function

Set tempfile = CreateTempFile
tempfile.WriteLine "Hello World"
tempfile.Close
```
GetTempName Method

Description

Returns a randomly generated temporary file or folder name that is useful for performing operations that require a temporary file or folder.

Syntax

`object.GetTempName`

The optional `object` is always the name of a `FileSystemObject`.

Remarks

The `GetTempName` method does not create a file. It provides only a temporary file name that can be used with `CreateTextFile` to create a file.

The following example illustrates use of the `GetTempName` method:

```vbnet
Dim fso, tempfile
Set fso = CreateObject("Scripting.FileSystemObject")

Function CreateTempFile
    Dim tfolder, tname, tfile
    Const TemporaryFolder = 2
    Set tfolder = fso.GetSpecialFolder(TemporaryFolder)
    tname = fso.GetTempName
```
Set tfile = tfolder.CreateTextFile(tname)
Set CreateTempFile = tfile
End Function

Set tempfile = CreateTempFile
tempfile.WriteLine "Hello World"
tempfile.Close
IsReady Property

Description

Returns True if the specified drive is ready; False if it is not.

Syntax

object.IsReady

The object is always a Drive object.

Remarks

For removable-media drives and CD-ROM drives, IsReady returns True only when the appropriate media is inserted and ready for access.

The following code illustrates the use of the IsReady property:

Function ShowDriveInfo(drvpath)
    Dim fso, d, s, t
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(drvpath)
    Select Case d.DriveType
        Case 0: t = "Unknown"
        Case 1: t = "Removable"
        Case 2: t = "Fixed"
        Case 3: t = "Network"
        Case 4: t = "CD-ROM"
        Case 5: t = "RAM Disk"
    End Select
    s = "Drive " & d.DriveLetter & ": - " & t
If d.IsReady Then
    s = s & "<BR>" & "Drive is Ready."
Else
    s = s & "<BR>" & "Drive is not Ready."
End If
ShowDriveInfo = s
End Function
IsRootFolder Property

Description

Returns True if the specified folder is the root folder; False if it is not.

Syntax

object.IsRootFolder

The object is always a Folder object.

Remarks

The following code illustrates the use of the IsRootFolder property:

Function DisplayLevelDepth(pathspec)
    Dim fso, f, n
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(pathspec)
    If f.IsRootFolder Then
        DisplayLevelDepth = "The specified folder is the root folder."
    Else
        Do Until f.IsRootFolder
            Set f = f.ParentFolder
            n = n + 1
        Loop
        DisplayLevelDepth = "The specified folder is nested " & n & " levels deep."
    End If
End Function
**Item Property**

**Description**

Sets or returns an *item* for a specified *key* in a **Dictionary** object. For collections, returns an *item* based on the specified *key*. Read/write.

**Syntax**

```
object.Item(key) [= newItem]
```

The **Item** property has the following parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a collection or <strong>Dictionary</strong> object.</td>
</tr>
<tr>
<td>key</td>
<td>Required. <em>Key</em> associated with the <em>item</em> being retrieved or added.</td>
</tr>
<tr>
<td>newItem</td>
<td>Optional. Used for <strong>Dictionary</strong> object only; no application for collections. If provided, <em>newitem</em> is the new value associated with the specified <em>key</em>.</td>
</tr>
</tbody>
</table>

**Remarks**

If *key* is not found when changing an *item*, a new *key* is created with the specified *newitem*. If *key* is not found when attempting to return an existing *item*, a new *key* is created and its corresponding *item* is left empty.

The following example illustrates the use of the **Item** property:

```vbscript
Function ItemDemo
```
Dim d ' Create some variables.
Set d = CreateObject("Scripting.Dictionary")
d.Add "a", "Athens" ' Add some keys and items
d.Add "b", "Belgrade"
d.Add "c", "Cairo"
ItemDemo = d.Item("c") ' Get the item.
End Function
Items

Method

Description

Returns an array containing all the items in a Dictionary object.

Syntax

object.Items

The object is always the name of a Dictionary object.

Remarks

The following code illustrates use of the Items method:

Function DicDemo
  Dim a, d, i, s  ' Create some variables.
  Set d = CreateObject("Scripting.Dictionary")
  d.Add "a", "Athens"  ' Add some keys and items.
  d.Add "b", "Belgrade"
  d.Add "c", "Cairo"
  a = d.Items  ' Get the items.
  For i = 0 To d.Count -1  ' Iterate the array.
    s = s & a(i) & "<BR>"  ' Create return string.
  Next
  DicDemo = s
End Function
Key Property

Description

Sets a key in a Dictionary object.

Syntax

object.Key(key) = newkey

The Key property has the following parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a Dictionary object.</td>
</tr>
<tr>
<td>key</td>
<td>Required. Key value being changed.</td>
</tr>
<tr>
<td>newkey</td>
<td>Required. New value that replaces the specified key.</td>
</tr>
</tbody>
</table>

Remarks

If key is not found when changing a key, a run-time error will occur.

The following example illustrates the use of the Key property:

Function DicDemo

Dim d ' Create some variables.
Set d = CreateObject("Scripting.Dictionary")
d.Add "a", "Athens" ' Add some keys and items: 
d.Add "b", "Belgrade"
d.Add "c", "Cairo"
d.Key("c") = "d"  ' Set key for "c" to "d".
DicDemo = d.Item("d")  ' Return associate item.
End Function
Keys Method

Description

Returns an array containing all existing keys in a Dictionary object.

Syntax

object.Keys

The object is always the name of a Dictionary object.

Remarks

The following code illustrates use of the Keys method:

```vbscript
Function DicDemo
    Dim a, d, i  ' Create some variables.
    Set d = CreateObject("Scripting.Dictionary")
    d.Add "a", "Athens"  ' Add some keys and items.
    d.Add "b", "Belgrade"
    d.Add "c", "Cairo"
    a = d.Keys  ' Get the keys.
    For i = 0 To d.Count -1 ' Iterate the array.
        s = s & a(i) & "<BR>" ' Return results.
    Next
    DicDemo = s
End Function
```
**Line Property**

**Description**

Read-only property that returns the current line number in a **TextStream** file.

**Syntax**

```vbnet
object.Line
```

The `object` is always the name of a **TextStream** object.

**Remarks**

After a file is initially opened and before anything is written, **Line** is equal to 1.

The following example illustrates use of the **Line** property:

```vbnet
Function GetLine
    Const ForReading = 1, ForWriting = 2
    Dim fso, f, ra
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting, True)
    f.Write "Hello world!" & vbCrLf & "VB Script is fun!" & vbCrLf
    Set f = fso.OpenTextFile("c:\testfile.txt", ForReading)
    ra = f.ReadAll
    GetLine = f.Line
End Function
```
Move Method

Description

Moves a specified file or folder from one location to another.

Syntax

\texttt{object.Move destination}

The \texttt{Move} method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a \texttt{File} or \texttt{Folder} object.</td>
</tr>
<tr>
<td>destination</td>
<td>Required. Destination where the file or folder is to be moved. Wildcard characters are not allowed.</td>
</tr>
</tbody>
</table>

Remarks

The results of the \texttt{Move} method on a \texttt{File} or \texttt{Folder} are identical to operations performed using \texttt{FileSystemObject.MoveFile} or \texttt{FileSystemObject.MoveFolder}. You should note, however, that the alternative methods are capable of moving multiple files or folders.

The following example illustrates use of the \texttt{Move} method:

```vbnet
Dim fso, MyFile
Set fso = CreateObject("Scripting.FileSystemObject")
Set MyFile = fso.CreateTextFile("c:\testfile.txt", True)
MyFile.WriteLine("This is a test.")
```

MyFile.Close
Set MyFile = fso.GetFile("c:\testfile.txt")
MyFile.Move "c:\windows\desktop\"
MoveFile Method

Description

Moves one or more files from one location to another.

Syntax

```
object.MoveFile source, destination
```

The `MoveFile` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <code>FileSystemObject</code>.</td>
</tr>
<tr>
<td><code>source</code></td>
<td>Required. The path to the file or files to be moved. The <code>source</code> argument string can contain wildcard characters in the last path component only.</td>
</tr>
<tr>
<td><code>destination</code></td>
<td>Required. The path where the file or files are to be moved. The <code>destination</code> argument can't contain wildcard characters.</td>
</tr>
</tbody>
</table>

Remarks

If `source` contains wildcards or `destination` ends with a path separator (\), it is assumed that `destination` specifies an existing folder in which to move the matching files. Otherwise, `destination` is assumed to be the name of a destination file to create. In either case, three things can happen when an individual file is moved:

- If `destination` does not exist, the file gets moved. This is the usual case.
- If `destination` is an existing file, an error occurs.
- If `destination` is a directory, an error occurs.
An error also occurs if a wildcard character that is used in source doesn't match any files. The **MoveFile** method stops on the first error it encounters. No attempt is made to roll back any changes made before the error occurs.

The following example illustrates use of the **MoveFile** method:

```vba
Sub MoveAFile(Drivespec)
    Dim fso
    Set fso = CreateObject("Scripting.FileSystemObject")
fso.MoveFile Drivespec, "c:\windows\desktop\"
End Sub
```

**Important** This method allows moving files between volumes only if supported by the operating system.
MovesFolder Method

Description

Moves one or more folders from one location to another.

Syntax

\texttt{object.MoveFolder source, destination}

The \texttt{MoveFolder} method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{object}</td>
<td>Required. Always the name of a \texttt{FileSystemObject}.</td>
</tr>
<tr>
<td>\texttt{source}</td>
<td>Required. The path to the folder or folders to be moved. The \texttt{source} argument string can contain wildcard characters in the last path component only.</td>
</tr>
<tr>
<td>\texttt{destination}</td>
<td>Required. The path where the folder or folders are to be moved. The \texttt{destination} argument can't contain wildcard characters.</td>
</tr>
</tbody>
</table>

Remarks

If \texttt{source} contains wildcards or \texttt{destination} ends with a path separator (\texttt{\}), it is assumed that \texttt{destination} specifies an existing folder in which to move the matching files. Otherwise, \texttt{destination} is assumed to be the name of a destination folder to create. In either case, three things can happen when an individual folder is moved:

- If \texttt{destination} does not exist, the folder gets moved. This is the usual case.
- If *destination* is an existing file, an error occurs.
- If *destination* is a directory, an error occurs.

An error also occurs if a wildcard character that is used in *source* doesn't match any folders. The **MoveFolder** method stops on the first error it encounters. No attempt is made to roll back any changes made before the error occurs.

The following example illustrates use of the **MoveFolder** method:

```vbs
Sub MoveAFolder(Drivespec)
    Dim fso
    Set fso = CreateObject("Scripting.FileSystemObject")
    fso.MoveFolder Drivespec, "c:\windows\desktop\"
End Sub
```

**Important** This method allows moving folders between volumes only if supported by the operating system.
**Name Property**

**Description**

Sets or returns the name of a specified file or folder. Read/write.

**Syntax**

`object.Name [= newname]`

The `Name` property has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <strong>File</strong> or <strong>Folder</strong> object.</td>
</tr>
<tr>
<td><code>newname</code></td>
<td>Optional. If provided, <code>newname</code> is the new name of the specified <code>object</code>.</td>
</tr>
</tbody>
</table>

**Remarks**

The following code illustrates the use of the `Name` property:

```vbscript
Function ShowFileAccessInfo(filespec)
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    s = f.Name & " on Drive " & UCase(f.Drive) & "<BR>"
    s = s & "Created: " & f.DateCreated & "<BR>"
    s = s & "Last Accessed: " & f.DateLastAccessed & "<BR>"
    s = s & "Last Modified: " & f.DateLastModified
    ShowFileAccessInfo = s
End Function
```
OpenAsTextStream Method

Description

Opens a specified file and returns a TextStream object that can be used to read from, write to, or append to the file.

Syntax

object.OpenAsTextStream([iomode, [format]])

The OpenAsTextStream method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a File object.</td>
</tr>
<tr>
<td>iomode</td>
<td>Optional. Indicates input/output mode. Can be one of three constants: ForReading, ForWriting, or ForAppending.</td>
</tr>
<tr>
<td>format</td>
<td>Optional. One of three Tristate values used to indicate the format of the opened file. If omitted, the file is opened as ASCII.</td>
</tr>
</tbody>
</table>

Settings

The iomode argument can have any of the following settings:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ForReading</td>
<td>1</td>
<td>Open a file for reading only. You can't write to this file.</td>
</tr>
<tr>
<td>ForWriting</td>
<td>2</td>
<td>Open a file for writing. If a file with the same name exists, its previous contents</td>
</tr>
</tbody>
</table>
ForAppending 8 Open a file and write to the end of the file.

The format argument can have any of the following settings:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TristateUseDefault</td>
<td>-2</td>
<td>Opens the file using the system default.</td>
</tr>
<tr>
<td>TristateTrue</td>
<td>-1</td>
<td>Opens the file as Unicode.</td>
</tr>
<tr>
<td>TristateFalse</td>
<td>0</td>
<td>Opens the file as ASCII.</td>
</tr>
</tbody>
</table>

Remarks

The OpenAsTextStream method provides the same functionality as the OpenTextFile method of the FileSystemObject. In addition, the OpenAsTextStream method can be used to write to a file.

The following code illustrates the use of the OpenAsTextStream method:

```vba
Function TextStreamTest
    Const ForReading = 1, ForWriting = 2, ForAppending = 8, 
    TristateUseDefault = -2, TristateTrue = -1, TristateFalse = 0
    Dim fso, f, ts
    Set fso = CreateObject("Scripting.FileSystemObject")
    fso.CreateTextFile "test1.txt" ' Create a file
    Set f = fso.GetFile("test1.txt")
    Set ts = f.OpenAsTextStream(ForWriting, TristateUseDefault)
    ts.Write "Hello World"
    ts.Close
    Set ts = f.OpenAsTextStream(ForReading, TristateTrue)
End Function
```
TextStreamTest = ts.ReadLine
ts.Close
End Function
OpenTextFile Method

Description

Opens a specified file and returns a TextStream object that can be used to read from, write to, or append to the file.

Syntax

object.OpenTextFile(filename[, iomode[, create[, format]]])

The OpenTextFile method has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a FileSystemObject.</td>
</tr>
<tr>
<td>filename</td>
<td>Required. String expression that identifies the file to open.</td>
</tr>
<tr>
<td>iomode</td>
<td>Optional. Indicates input/output mode. Can be one of three constants: ForReading, ForWriting, or ForAppending.</td>
</tr>
<tr>
<td>create</td>
<td>Optional. Boolean value that indicates whether a new file can be created if the specified filename doesn't exist. The value is True if a new file is created; False if it isn't created. The default is False.</td>
</tr>
<tr>
<td>format</td>
<td>Optional. One of three Tristate values used to indicate the format of the opened file. If omitted, the file is opened as ASCII.</td>
</tr>
</tbody>
</table>

Settings

The iomode argument can have either of the following settings:
<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ForReading</td>
<td>1</td>
<td>Open a file for reading only. You can't write to this file.</td>
</tr>
<tr>
<td>ForWriting</td>
<td>2</td>
<td>Open a file for writing only. You can't read from this file.</td>
</tr>
<tr>
<td>ForAppending</td>
<td>8</td>
<td>Open a file and write to the end of the file.</td>
</tr>
</tbody>
</table>

The *format* argument can have any of the following settings:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TristateUseDefault</td>
<td>-2</td>
<td>Opens the file using the system default.</td>
</tr>
<tr>
<td>TristateTrue</td>
<td>-1</td>
<td>Opens the file as Unicode.</td>
</tr>
<tr>
<td>TristateFalse</td>
<td>0</td>
<td>Opens the file as ASCII.</td>
</tr>
</tbody>
</table>

Remarks

The following code illustrates the use of the **OpenTextFile** method to open a file for writing text:

```vbscript
Sub OpenTextFileTest
    Const ForReading = 1, ForWriting = 2, ForAppending = 8
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting, True)
    f.Write "Hello world!"
    f.Close
End Sub
```
**ParentFolder Property**

**Description**

Returns the folder object for the parent of the specified file or folder. Read-only.

**Syntax**

```vbnet
object.ParentFolder
```

The `object` is always a `File` or `Folder` object.

**Remarks**

The following code illustrates the use of the `ParentFolder` property with a file:

```vbnet
Function ShowFileAccessInfo(filespec)
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    s = UCase(f.Name) & " in " & UCase(f.ParentFolder) & "<BR>"
    s = s & "Created: " & f.DateCreated & "<BR>"
    s = s & "Last Accessed: " & f.DateLastAccessed & "<BR>"
    s = s & "Last Modified: " & f.DateLastModified
    ShowFileAccessInfo = s
End Function
```
**Path Property**

**Description**

Returns the path for a specified file, folder, or drive.

**Syntax**

```vbnet
object.Path
```

The `object` is always a `File`, `Folder`, or `Drive` object.

**Remarks**

For drive letters, the root drive is not included. For example, the path for the C drive is C:, not C:\.

The following code illustrates the use of the `Path` property with a `File` object:

```vbnet
Function ShowFileAccessInfo(filespec)
    Dim fso, d, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    s = UCase(f.Path) & "<BR>"
    s = s & "Created: " & f.DateCreated & "<BR>"
    s = s & "Last Accessed: " & f.DateLastAccessed & "<BR>"
    s = s & "Last Modified: " & f.DateLastModified
    ShowFileAccessInfo = s
End Function
```
**Read**

**Method**

**Description**

Reads a specified number of characters from a `TextStream` file and returns the resulting string.

**Syntax**

```
object.Read(characters)
```

The `Read` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a <code>TextStream</code> object.</td>
</tr>
<tr>
<td><code>characters</code></td>
<td>Required. Number of characters you want to read from the file.</td>
</tr>
</tbody>
</table>

**Remarks**

The following example illustrates how to use the `Read` method to read five characters from a file and return the resulting string:

```vbnet
Function ReadTextFileTest
    Const ForReading = 1, ForWriting = 2, ForAppending = 8
    Dim fso, f, Msg
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting)
    ' Read five characters
    For i = 1 To 5
        Msg = Msg & fso.Read(5)
    Next i
    MsgBox Msg
End Function
```
f.Write "Hello world!"
Set f = fso.OpenTextFile("c:\testfile.txt", ForReading)
ReadTextFileTest =  f.Read(5)
End Function
ReadAll Method

Description
Reads an entire TextStream file and returns the resulting string.

Syntax
object.ReadAll

The object is always the name of a TextStream object.

Remarks
For large files, using the ReadAll method wastes memory resources. Other techniques should be used to input a file, such as reading a file line by line.

Function ReadAllTextFile
Const ForReading = 1, ForWriting = 2
Dim fso, f
Set fso = CreateObject("Scripting.FileSystemObject")
Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting, True)
f.Write "Hello world!"
Set f = fso.OpenTextFile("c:\testfile.txt", ForReading)
ReadAllTextFile = f.ReadAll
End Function
**ReadLine Method**

**Description**

Reads an entire line (up to, but not including, the newline character) from a `TextStream` file and returns the resulting string.

**Syntax**

```
object.ReadLine
```

The `object` argument is always the name of a `TextStream` object.

**Remarks**

The following example shows how to use the `ReadLine` method to read a line from a `TextStream` file and return the string:

```vbs
Function ReadLineTextFile
  Const ForReading = 1, ForWriting = 2
  Dim fso, MyFile
  Set fso = CreateObject("Scripting.FileSystemObject")
  Set MyFile = fso.OpenTextFile("c:\testfile.txt", ForWriting, True)
  MyFile.WriteLine "Hello world!"
  MyFile.WriteLine "The quick brown fox"
  MyFile.Close
  Set MyFile = fso.OpenTextFile("c:\testfile.txt", ForReading)
  ReadLineTextFile = MyFile.ReadLine ' Returns "Hello world!"
End Function
```
**Description**

Removes a key, item pair from a Dictionary object.

**Syntax**

`object.Remove(key)`

The `Remove` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>object</code></td>
<td>Required. Always the name of a Dictionary object.</td>
</tr>
<tr>
<td><code>key</code></td>
<td>Required. Key associated with the key, item pair you want to remove from the Dictionary object.</td>
</tr>
</tbody>
</table>

**Remarks**

An error occurs if the specified key, item pair does not exist.

The following code illustrates use of the `Remove` method:

```vbscript
Dim a, d ' Create some variables.
Set d = CreateObject("Scripting.Dictionary")
d.Add "a", "Athens" ' Add some keys and items.
d.Add "b", "Belgrade"
d.Add "c", "Cairo"
```

...
d.Remove("b")       ' Remove second pair.
RemoveAll Method

Description

The RemoveAll method removes all key, item pairs from a Dictionary object.

Syntax

`object.RemoveAll`

The `object` is always the name of a Dictionary object.

Remarks

The following code illustrates use of the RemoveAll method:

```vbnet
Dim a, d, i ' Create some variables.
Set d = CreateObject("Scripting.Dictionary")
d.Add "a", "Athens" ' Add some keys and items.
d.Add "b", "Belgrade"
d.Add "c", "Cairo"
...
a = d.RemoveAll ' Clear the dictionary.
```
**RootFolder Property**

**Description**

Returns a Folder object representing the root folder of a specified drive. Read-only.

**Syntax**

```
object.RootFolder
```

The object is always a Drive object.

**Remarks**

All the files and folders contained on the drive can be accessed using the returned Folder object.

The following example illustrates the use of the RootFolder property:

```
Function ShowRootFolder(drvspec)
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetDrive(drvspec)
    ShowRootFolder = f.RootFolder
End Function
```
SerialNumber Property

Description

Returns the decimal serial number used to uniquely identify a disk volume.

Syntax

```
object.SerialNumber
```

The `object` is always a `Drive` object.

Remarks

You can use the `SerialNumber` property to ensure that the correct disk is inserted in a drive with removable media.

The following code illustrates the use of the `SerialNumber` property:

```vbs
Function ShowDriveInfo(drvpath)
    Dim fso, d, s, t
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(fso.GetDriveName(fso.GetAbsolutePathName(drvpath)))
    Select Case d.DriveType
        Case 0: t = "Unknown"
        Case 1: t = "Removable"
        Case 2: t = "Fixed"
        Case 3: t = "Network"
        Case 4: t = "CD-ROM"
        Case 5: t = "RAM Disk"
    End Select
End Function
```
s = "Drive " & d.DriveLetter & ": - " & t
s = s & "<BR>" & "SN: " & d.SerialNumber
ShowDriveInfo = s
End Function
ShareName Property

See Also

Applies To

Description

Returns the network share name for a specified drive.

Syntax

\textit{object}.	exttt{ShareName}

The \textit{object} is always a \texttt{Drive} object.

Remarks

If \textit{object} is not a network drive, the \texttt{ShareName} property returns a zero-length string (""").

The following code illustrates the use of the \texttt{ShareName} property:

\begin{verbatim}
Function ShowDriveInfo(drvpath)
    Dim fso, d
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(fso.GetDriveName(fso.GetAbsolutePathName(drvpath)))
    ShowDriveInfo = "Drive " & d.DriveLetter & ": " & d.ShareName
End Function
\end{verbatim}
ShortName Property

Description

Returns the short name used by programs that require the earlier 8.3 naming convention.

Syntax

\textit{object}\texttt{.ShortName}

The \textit{object} is always a \texttt{File} or \texttt{Folder} object.

Remarks

The following code illustrates the use of the \texttt{ShortName} property with a \texttt{File} object:

Function ShowShortName(filespec)
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    s = "The short name for " & UCase(f.Name) & "<BR>"
    s = s & "is: " & f.ShortName
    ShowShortName = s
End Function
ShortPath Property

Description

Returns the short path used by programs that require the earlier 8.3 file naming convention.

Syntax

object.ShortPath

The object is always a File or Folder object.

Remarks

The following code illustrates the use of the ShortName property with a File object:

Function ShowShortPath(filespec)
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFile(filespec)
    s = "The short path for " & UCase(f.Name) & "<BR>"
    s = s & "is: " & f.ShortPath
    ShowShortPath = s
End Function
Size Property

Description

For files, returns the size, in bytes, of the specified file. For folders, returns the size, in bytes, of all files and subfolders contained in the folder.

Syntax

```
object.Size
```

The `object` is always a `File` or `Folder` object.

Remarks

The following code illustrates the use of the `Size` property with a `Folder` object:

```
Function ShowFolderSize(filespec)
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(filespec)
    s = UCase(f.Name) & " uses " & f.Size & " bytes."
    ShowFolderSize = s
End Function
```
Method

Description

Skips a specified number of characters when reading a TextStream file.

Syntax

object.Skip(characters)

The Skip method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a TextStream object.</td>
</tr>
<tr>
<td>characters</td>
<td>Required. Number of characters to skip when reading a file.</td>
</tr>
</tbody>
</table>

Remarks

Skipped characters are discarded.

The following example uses the Skip method to skip the first six characters before reading from a text file:

Function SkipTextFile

    Const ForReading = 1, ForWriting = 2
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting)
    f.Write "Hello world!"
Set f = fso.OpenTextFile("c:\testfile.txt", ForRead)
f.Skip(6)
SkipTextFile = f.ReadLine
End Function
SkipLine Method

Description

Skips the next line when reading a **TextStream** file.

Syntax

```vbnet
object.SkipLine
```

The `object` is always the name of a **TextStream** object.

Remarks

Skipping a line means reading and discarding all characters in a line up to and including the next newline character. An error occurs if the file is not open for reading.

The following example illustrates use of the **SkipLine** method:

```vbnet
Function SkipLineInFile
    Const ForReading = 1, ForWriting = 2
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting, True)
    f.WriteLine "Hello world!" & vbCrLf & "VB Script is fun!"
    Set f = fso.OpenTextFile("c:\testfile.txt", ForReading)
    f.SkipLine
    SkipLineInFile = f.ReadLine
End Function
```
SpecialFolder Constants

These constants are only available when your project has an explicit reference to the appropriate type library containing these constant definitions. For VBScript, you must explicitly declare these constants in your code.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WindowsFolder</td>
<td>0</td>
<td>The Windows folder contains files installed by the Windows operating system.</td>
</tr>
<tr>
<td>SystemFolder</td>
<td>1</td>
<td>The System folder contains libraries, fonts, and device drivers.</td>
</tr>
<tr>
<td>TemporaryFolder</td>
<td>2</td>
<td>The Temp folder is used to store temporary files. Its path is found in the TMP environment variable.</td>
</tr>
</tbody>
</table>
SubFolders Property

Description

Returns a **Folders** collection consisting of all folders contained in a specified folder, including those with Hidden and System file attributes set.

Syntax

```vbscript
object.SubFolders
```

The *object* is always a **Folder** object.

Remarks

The following code illustrates the use of the **SubFolders** property:

```vbscript
Function ShowFolderList(folderspec)
    Dim fso, f, f1, s, sf
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(folderspec)
    Set sf = f.SubFolders
    For Each f1 in sf
        s = s & f1.name
        s = s & "<BR>"
    Next
    ShowFolderList = s
End Function
```
TextStream Object

Description

Facilitates sequential access to a file.

Remarks

In the following code, `a` is the TextStream object returned by the CreateTextFile method on the FileSystemObject:

```vbnet
Dim fso, MyFile
Set fso = CreateObject("Scripting.FileSystemObject")
Set MyFile = fso.CreateTextFile("c:\testfile.txt", True)
MyFile.WriteLine("This is a test.")
MyFile.Close
```

WriteLine and Close are two methods of the TextStream Object.
TotalSize Property

Description

Returns the total space, in bytes, of a drive or network share.

Syntax

```
object.TotalSize
```

The `object` is always a `Drive` object.

Remarks

The following code illustrates the use of the `TotalSize` property:

```
Function ShowSpaceInfo(drvpath)
    Dim fso, d, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(fso.GetDriveName(fso.GetAbsolutePathName(drvpath)))
    s = "Drive " & d.DriveLetter & ":"
    s = s & vbCrLf
    s = s & "Total Size: " & FormatNumber(d.TotalSize/1024, 0) & " Kbytes"
    s = s & vbCrLf
    s = s & "Available: " & FormatNumber(d.AvailableSpace/1024, 0) & " Kbytes"
    ShowSpaceInfo = s
End Function
```
**Type Property**

**Description**

Returns information about the type of a file or folder. For example, for files ending in .TXT, "Text Document" is returned.

**Syntax**

```vbnet
object.Type
```

The `object` is always a `File` or `Folder` object.

**Remarks**

The following code illustrates the use of the `Type` property to return a folder type. In this example, try providing the path of the Recycle Bin or other unique folder to the procedure.

```vbnet
Function ShowFolderType(filespec)
    Dim fso, f, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.GetFolder(filespec)
    s = UCase(f.Name) & " is a " & f.Type
    ShowFolderType = s
End Function
```
VolumeName Property

Description

Sets or returns the volume name of the specified drive. Read/write.

Syntax

\[ \text{object}\cdot\text{VolumeName} \ [= \ newname] \]

The VolumeName property has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a Drive object.</td>
</tr>
<tr>
<td>newname</td>
<td>Optional. If provided, newname is the new name of the specified object.</td>
</tr>
</tbody>
</table>

Remarks

The following code illustrates the use of the VolumeName property:

```vbscript
Function ShowVolumeInfo(drvpath)
    Dim fso, d, s
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set d = fso.GetDrive(fso.GetDriveName(fso.GetAbsolutePathName(drvpath)))
    s = "Drive " & d.DriveLetter & ": - " & d.VolumeName
    ShowVolumeInfo = s
End Function
```
Write Method

See Also Applies to

Description

Writes a specified string to a TextStream file.

Syntax

object.Write(string)

The Write method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a TextStream object.</td>
</tr>
<tr>
<td>string</td>
<td>Required. The text you want to write to the file.</td>
</tr>
</tbody>
</table>

Remarks

Specified strings are written to the file with no intervening spaces or characters between each string. Use the WriteLine method to write a newline character or a string that ends with a newline character.

The following example illustrates use of the Write method:

Function WriteToFile
   Const ForReading = 1, ForWriting = 2
   Dim fso, f
   Set fso = CreateObject("Scripting.FileSystemObject")
   Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting)
   f.Write "Hello world!"
Set f = fso.OpenTextFile("c:\testfile.txt", ForReading)
WriteToMe = f.ReadLine
End Function
WriteBlankLines Method

Description

Writes a specified number of newline characters to a TextStream file.

Syntax

```markdown
object.WriteBlankLines(lines)
```

The WriteBlankLines method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a TextStream object.</td>
</tr>
<tr>
<td>lines</td>
<td>Required. Number of newline characters you want to write to the file.</td>
</tr>
</tbody>
</table>

Remarks

The following example illustrates use of the WriteBlankLines method:

```vba
Function WriteBlankLinesToFile
    Const ForReading = 1, ForWriting = 2
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting, True)
    f.WriteBlankLines 2
    f.WriteLine "Hello World!"
    Set f = fso.OpenTextFile("c:\testfile.txt", ForReading)
    WriteBlankLinesToFile = f.ReadAll
End Function
```
End Function
**WriteLine Method**

**See Also**

**Applies to**

---

**Description**

Writes a specified string and newline character to a `TextStream` file.

**Syntax**

```
object.WriteLine([string])
```

The `WriteLine` method syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>Required. Always the name of a <code>TextStream</code> object.</td>
</tr>
<tr>
<td>string</td>
<td>Optional. The text you want to write to the file. If omitted, a newline character is written to the file.</td>
</tr>
</tbody>
</table>

**Remarks**

The following example illustrates use of the `WriteLine` method:

```vbs
Function WriteLineToFile
    Const ForReading = 1, ForWriting = 2
    Dim fso, f
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f = fso.OpenTextFile("c:\testfile.txt", ForWriting, True)
    f.WriteLine "Hello world!"
    f.WriteLine "VBScript is fun!"
    Set f = fso.OpenTextFile("c:\testfile.txt", ForReading)
    WriteLineToFile = f.ReadAll
End Function
```
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Microsoft® Visual Basic® Scripting Edition

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There are two major categories of file manipulation:

- Creating, adding, or removing data, and reading files
- Moving, copying, and deleting files

Creating Files

There are three ways to create an empty text file (sometimes referred to as a "text stream").

The first way is to use the `CreateTextFile` method. The following example demonstrates how to create a text file using this method in VBScript:

```vbnet
Dim fso, f1
Set fso = CreateObject("Scripting.FileSystemObject")
Set f1 = fso.CreateTextFile("c:\testfile.txt", True)
```

To use this method in JScript, use this code:

```javascript
var fso, f1;
fso = new ActiveXObject("Scripting.FileSystemObject");
f1 = fso.CreateTextFile("c:\testfile.txt", true);
```

View this [sample code](#) to see how the `CreateTextFile` method is used in `FileSystemObject`.

The second way to create a text file is to use the `OpenTextFile` method of the `FileSystemObject` object with the `ForWriting` flag set. In VBScript, the code looks like this example:

```vbnet
Dim fso, ts
Const ForWriting = 2
Set fso = CreateObject("Scripting.FileSystemObject")
Set ts = fso.OpenTextFile("c:\test.txt", ForWriting, True)
```
To create a text file using this method in JScript, use this code:

```javascript
var fso, ts;
var ForWriting= 2;
fso = new ActiveXObject("Scripting.FileSystemObject");
fs = fso.OpenTextFile("c:\test.txt", ForWriting, true);
```

A third way to create a text file is to use the `OpenAsTextStream` method with the `ForWriting` flag set. For this method, use the following code in VBScript:

```vbscript
Dim fso, f1, ts
Const ForWriting = 2
Set fso = CreateObject("Scripting.FileSystemObject")
fso.CreateTextFile( "c:\test1.txt")
Set f1 = fso.GetFile("c:\test1.txt")
Set ts = f1.OpenAsTextStream(ForWriting, True)
```

In JScript, use the code in the following example:

```javascript
var fso, f1, ts;
var ForWriting = 2;
fso = new ActiveXObject("Scripting.FileSystemObject");
fso.CreateTextFile( "c:\test1.txt")
f1 = fso.GetFile("c:\test1.txt")
ts = f1.OpenAsTextStream(ForWriting, true);
```

**Adding Data to the File**

Once the text file is created, add data to the file using the following three steps:

1. Open the text file.
2. Write the data.
3. Close the file.
To open an existing file, use either the **OpenTextFile** method of the **FileSystemObject** object or the **OpenAsTextStream** method of the **File** object.

To write data to the open text file, use the **Write**, **WriteLine**, or **WriteBlankLines** methods of the **TextStream** object, according to the tasks outlined in the following table.

<table>
<thead>
<tr>
<th>Task</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write data to an open text file without a trailing newline character.</td>
<td><strong>Write</strong></td>
</tr>
<tr>
<td>Write data to an open text file with a trailing newline character.</td>
<td><strong>WriteLine</strong></td>
</tr>
<tr>
<td>Write one or more blank lines to an open text file.</td>
<td><strong>WriteBlankLines</strong></td>
</tr>
</tbody>
</table>

View this [sample code](#) to see how the **Write**, **WriteLine**, and **WriteBlankLines** methods are used in **FileSystemObject**.

To close an open file, use the **Close** method of the **TextStream** object.

View this [sample code](#) to see how the **Close** method is used in **FileSystemObject**.

---

**Note**  The newline character contains a character or characters (depending on the operating system) to advance the cursor to the beginning of the next line (carriage return/line feed). Be aware that the end of some strings may already have such nonprinting characters.

---

The following VBScript example demonstrates how to open a file, use all three write methods to add data to the file, and then close the file:

```vbscript
Sub CreateFile()
    Dim fso, tf
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set tf = fso.CreateTextFile("c:\testfile.txt", True)
    ' Write a line with a newline character.
    tf.WriteLine("Testing 1, 2, 3.")
End Sub
```
' Write three newline characters to the file.
  tf.WriteBlankLines(3)
' Write a line.
  tf.Write ("This is a test.")
  tf.Close
End Sub

This example demonstrates how to use the three methods in JScript:

```javascript
function CreateFile()
{
  var fso, tf;
  fso = new ActiveXObject("Scripting.FileSystemObject");
  tf = fso.CreateTextFile("c:\testfile.txt", true);
  // Write a line with a newline character.
  tf.WriteLine("Testing 1, 2, 3.");
  // Write three newline characters to the file.
  tf.WriteBlankLines(3);
  // Write a line.
  tf.Write ("This is a test.");
  tf.Close();
}
```

Reading Files

To read data from a text file, use the `Read`, `ReadLine`, or `ReadAll` method of the `TextStream` object. The following table describes which method to use for various tasks.

<table>
<thead>
<tr>
<th>Task</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read a specified number of characters from a file.</td>
<td>Read</td>
</tr>
<tr>
<td>Read an entire line (up to, but not including, the newline character).</td>
<td>ReadLine</td>
</tr>
<tr>
<td>Read the entire contents of a text file.</td>
<td>ReadAll</td>
</tr>
</tbody>
</table>
View this sample code to see how the **ReadAll** and **ReadLine** methods are used in **FileSystemObject**.

If you use the **Read** or **ReadLine** method and want to skip to a particular portion of data, use the **Skip** or **SkipLine** method. The resulting text of the read methods is stored in a string which can be displayed in a control, parsed by string functions (such as **Left**, **Right**, and **Mid**), concatenated, and so forth.

The following VBScript example demonstrates how to open a file, write to it, and then read from it:

```vbnet
Sub ReadFiles
    Dim fso, f1, ts, s
    Const ForReading = 1
    Set fso = CreateObject("Scripting.FileSystemObject")
    Set f1 = fso.CreateTextFile("c:\testfile.txt", True)
    ' Write a line.
    Response.Write "Writing file <br>"
    f1.WriteLine "Hello World"
    f1.WriteBlankLines(1)
    f1.Close
    ' Read the contents of the file.
    Response.Write "Reading file <br>"
    Set ts = fso.OpenTextFile("c:\testfile.txt", ForReading)
    s = ts.ReadLine
    Response.Write "File contents = " & s & "."
    ts.Close
End Sub
```

This code demonstrates the same thing in JScript:

```javascript
function ReadFiles()
{
    var fso, f1, ts, s;
    var ForReading = 1;
    fso = new ActiveXObject("Scripting.FileSystemObject");
    f1 = fso.CreateTextFile("c:\testfile.txt", true);
    // Write a line.
```
Response.Write("Writing file <br>");
f1.WriteLine("Hello World");
f1.WriteBlankLines(1);
f1.Close();

// Read the contents of the file.
Response.Write("Reading file <br>");
ts = fso.OpenTextFile("c:\testfile.txt", ForReading);
s = ts.ReadLine();
Response.Write("File contents = " + s + ")

Moving, Copying, and Deleting Files

The FSO object model has two methods each for moving, copying, and deleting files, as described in the following table.

<table>
<thead>
<tr>
<th>Task</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move a file</td>
<td><code>File.Move</code> or <code>FileSystemObject.MoveFile</code></td>
</tr>
<tr>
<td>Copy a file</td>
<td><code>File.Copy</code> or <code>FileSystemObject.CopyFile</code></td>
</tr>
<tr>
<td>Delete a file</td>
<td><code>File.Delete</code> or <code>FileSystemObject.DeleteFile</code></td>
</tr>
</tbody>
</table>

View this [sample code](#) to see two ways to delete a file in `FileSystemObject`.

The following VBScript example creates a text file in the root directory of drive C, writes some information to it, moves it to a directory called \tmp, makes a copy of it in a directory called \temp, then deletes the copies from both directories.

To run the following example, create directories named \tmp and \temp in the root directory of drive C:

```vbscript
Sub ManipFiles
  Dim fso, f1, f2, s
  Set fso = CreateObject("Scripting.FileSystemObject")
  Set f1 = fso.CreateTextFile("c:\testfile.txt", True)
  Response.Write "Writing file <br>
  ' Write a line.
```
This code shows the same thing in JScript:

```javascript
function ManipFiles()
{
    var fso, f1, f2, s;
    fso = new ActiveXObject("Scripting.FileSystemObject");
    f1 = fso.CreateTextFile("c:\testfile.txt", true);
    Response.Write("Writing file <br>");
    // Write a line.
    f1.Write("This is a test.");
    // Close the file to writing.
    f1.Close();

    Response.Write("Moving file to c:tmp <br>");
    f2 = fso.GetFile("c:\testfile.txt")
    f2.Move("c:\tmp\testfile.txt")
    Response.Write("Copying file to c:temp <br>"
    f2.Copy("c:\temp\testfile.txt")
    Response.Write("Deleting files <br>"
    f2.Delete
    f3.Delete
    Response.Write("All done!"

End Sub
```
Response.Write("Moving file to c:\tmp <br>");
// Get a handle to the file in root of C:.
f2 = fso.GetFile("c:\testfile.txt");
// Move the file to \tmp directory.
f2.Move ("c:\tmp\testfile.txt");
Response.Write("Copying file to c:\temp <br>");
// Copy the file to \temp.
f2.Copy ("c:\temp\testfile.txt");
Response.Write("Deleting files <br>");
// Get handles to files' current location.
f2 = fso.GetFile("c:\tmp\testfile.txt");
f3 = fso.GetFile("c:\temp\testfile.txt");
// Delete the files.
f2.Delete();
f3.Delete();
Response.Write("All done!");
}
InStrRev Function

See Also

Description

Returns the position of an occurrence of one string within another, from the end of string.

Syntax

InStrRev(string1, string2[, start[, compare]])

The InStrRev function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>string1</td>
<td>Required. String expression being searched.</td>
</tr>
<tr>
<td>string2</td>
<td>Required. String expression being searched for.</td>
</tr>
<tr>
<td>start</td>
<td>Optional. Numeric expression that sets the starting position for each search. If omitted, -1 is used, which means that the search begins at the last character position. If start contains Null, an error occurs.</td>
</tr>
<tr>
<td>compare</td>
<td>Optional. Numeric value indicating the kind of comparison to use when evaluating substrings. If omitted, a binary comparison is performed. See Settings section for values.</td>
</tr>
</tbody>
</table>

Settings

The compare argument can have the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vbBinaryCompare</td>
<td>0</td>
<td>Perform a binary comparison.</td>
</tr>
<tr>
<td>vbTextCompare</td>
<td>1</td>
<td>Perform a textual comparison.</td>
</tr>
</tbody>
</table>
**Return Values**

**InStrRev** returns the following values:

<table>
<thead>
<tr>
<th>If</th>
<th>InStrRev returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>string1 is zero-length</td>
<td>0</td>
</tr>
<tr>
<td>string1 is <strong>Null</strong></td>
<td><strong>Null</strong></td>
</tr>
<tr>
<td>string2 is zero-length</td>
<td>start</td>
</tr>
<tr>
<td>string2 is <strong>Null</strong></td>
<td><strong>Null</strong></td>
</tr>
<tr>
<td>string2 is not found</td>
<td>0</td>
</tr>
<tr>
<td>string2 is found within <strong>string1</strong></td>
<td>Position at which match is found</td>
</tr>
<tr>
<td>start &gt; <strong>Len</strong>(string2)</td>
<td>0</td>
</tr>
</tbody>
</table>

**Remarks**

The following examples use the **InStrRev** function to search a string:

```vbs
Dim SearchString, SearchChar, MyPos
SearchString = "XXpXXpXXPXXP"        ' String to s
SearchChar = "P"                      ' Search for "P".
MyPos = InstrRev(SearchString, SearchChar, 10, 0)  ' A binary c
MyPos = InstrRev(SearchString, SearchChar, -1, 1)  ' A textual c
   ' the last position. Returns
MyPos = InstrRev(SearchString, SearchChar, 8)     ' Comparison is |
   ' argument is omitted. Ret
```

**Note**  The syntax for the **InStrRev** function is not the same as the syntax for the **Instr** function.
Abs Function

See Also

Sgn Function
ActiveX control
An object that you place on a form to enable or enhance a user's interaction with an application. ActiveX controls have events and can be incorporated into other controls. The controls have an .ocx file name extension.

ActiveX object
An object that is exposed to other applications or programming tools through Automation interfaces.

argument
A constant, variable, or expression passed to a procedure.

array
A set of sequentially indexed elements having the same type of data. Each element of an array has a unique identifying index number. Changes made to one element of an array do not affect the other elements.

ASCII Character Set
American Standard Code for Information Interchange (ASCII) 7-bit character set widely used to represent letters and symbols found on a standard U.S. keyboard. The ASCII character set is the same as the first 128 characters (0–127) in the ANSI character set.

Automation object
An object that is exposed to other applications or programming tools through Automation interfaces.

bitwise comparison
A bit-by-bit comparison of identically positioned bits in two numeric expressions.
**Boolean expression**
An expression that evaluates to either **True** or **False**.

**by reference**
A way of passing the address, rather than the value, of an argument to a procedure. This allows the procedure to access the actual variable. As a result, the variable's actual value can be changed by the procedure to which it is passed.

**by value**
A way of passing the value, rather than the address, of an argument to a procedure. This allows the procedure to access a copy of the variable. As a result, the variable's actual value can't be changed by the procedure to which it is passed.

**character code**
A number that represents a particular character in a set, such as the ASCII character set.

**class**
The formal definition of an object. The class acts as the template from which an instance of an object is created at run time. The class defines the properties of the object and the methods used to control the object's behavior.

**class module**
A module containing the definition of a class (its property and method definitions).

**collection**
An object that contains a set of related objects. An object's position in the collection can change whenever a change occurs in the collection; therefore, the position of any specific object in the collection may vary.

**comment**
Text added to code by a programmer that explains how the code works. In Visual Basic Scripting Edition, a comment line generally starts with an apostrophe ('), or you can use the keyword **Rem** followed by a space.
**comparison operator**

A character or symbol indicating a relationship between two or more values or expressions. These operators include less than (<), less than or equal to (<=), greater than (>), greater than or equal to (>=), not equal (<>), and equal (=).

**Is** is also a comparison operator, but it is used exclusively for determining if one object reference is the same as another.

---

**constant**

A named item that retains a constant value throughout the execution of a program. Constants can be used anywhere in your code in place of actual values. A constant can be a string or numeric literal, another constant, or any combination that includes arithmetic or logical operators except *Is* and exponentiation. For example:

```
Const A = "MyString"
```

---

**data ranges**

Each Variant subtype has a specific range of allowed values:

<table>
<thead>
<tr>
<th>Subtype</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Byte</strong></td>
<td>0 to 255.</td>
</tr>
<tr>
<td><strong>Boolean</strong></td>
<td><strong>True</strong> or <strong>False</strong>.</td>
</tr>
<tr>
<td><strong>Integer</strong></td>
<td>-32,768 to 32,767.</td>
</tr>
<tr>
<td><strong>Long</strong></td>
<td>-2,147,483,648 to 2,147,483,647.</td>
</tr>
<tr>
<td><strong>Single</strong></td>
<td>-3.402823E38 to -1.401298E-45 for negative values; 1.401298E-45 to 3.402823E38 for positive values.</td>
</tr>
<tr>
<td><strong>Double</strong></td>
<td>-1.79769313486232E308 to -4.94065645841247E-324 for negative values; 4.94065645841247E-324 to 1.79769313486232E308 for positive values.</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>January 1, 100 to December 31, 9999, inclusive.</td>
</tr>
<tr>
<td><strong>Object</strong></td>
<td>Any <strong>Object</strong> reference.</td>
</tr>
<tr>
<td>String</td>
<td>Variable-length strings may range in length from 0 to approximately 2 billion characters.</td>
</tr>
</tbody>
</table>

**date expression**

Any expression that can be interpreted as a date. This includes any combination of date literals, numbers that look like dates, strings that look like dates, and dates returned from functions. A date expression is limited to numbers or strings, in any combination, that can represent a date from January 1, 100 through December 31, 9999.

Dates are stored as part of a real number. Values to the left of the decimal represent the date; values to the right of the decimal represent the time. Negative numbers represent dates prior to December 30, 1899.

**date literal**

Any sequence of characters with a valid format that is surrounded by number signs (#). Valid formats include the date format specified by the locale settings for your code or the universal date format. For example, #12/31/99# is the date literal that represents December 31, 1999, where English-U.S. is the locale setting for your application.

VBScript always interprets a date literal as US-ENGLISH if it is possible to do so. If a date literal cannot be interpreted as a date, an error occurs.

**date separators**

Characters used to separate the day, month, and year when date values are formatted.

**Empty**

A value that indicates that no beginning value has been assigned to a variable. **Empty** variables are 0 in a numeric context, or zero-length in a string context.

**error number**

A whole number in the range 0 to 65,535, inclusive, that corresponds to the **Number** property of the **Err** object. When combined with the **Name** property of the **Err** object, this number represents a particular error message.
A combination of keywords, operators, variables, and constants that yield a string, number, or object. An expression can perform a calculation, manipulate characters, or test data.

**intrinsic constant**
A constant provided by an application. Because you can't disable intrinsic constants, you can't create a user-defined constant with the same name.

**keyword**
A word or symbol recognized as part of the VBScript language; for example, a statement, function name, or operator.

**locale**
The set of information that corresponds to a given language and country/region. A locale affects the language of predefined programming terms and locale-specific settings. There are two contexts where locale information is important:

- The code locale affects the language of terms such as keywords and defines locale-specific settings such as the decimal and list separators, date formats, and character sorting order.
- The system locale affects the way locale-aware functionality behaves, for example, when you display numbers or convert strings to dates. You set the system locale using the Control Panel utilities provided by the operating system.

**Nothing**
The special value that indicates that an object variable is no longer associated with any actual object.

**Null**
A value indicating that a variable contains no valid data. Null is the result of:

- An explicit assignment of Null to a variable.
- Any operation between expressions that contain Null.

**numeric expression**
Any expression that can be evaluated as a number. Elements of the expression can include any combination of keywords, variables, constants, and operators that result in a number.
**object type**
A type of object exposed by an application, for example, Application, File, Range, and Sheet. Refer to the application's documentation (Microsoft Excel, Microsoft Project, Microsoft Word, and so on) for a complete listing of available objects.

**pi**
Pi is a mathematical constant equal to approximately 3.1415926535897932.

**Private**
Variables that are visible only to the script in which they are declared.

**procedure**
A named sequence of statements executed as a unit. For example, **Function** and **Sub** are types of procedures.

**procedure level**
Describes statements located within a **Function** or **Sub** procedure. Declarations are usually listed first, followed by assignments and other executable code. For example:

```vba
Sub MySub() ' This statement declares a sub procedure block.
    Dim A ' This statement starts the procedure block.
    A = "My variable" ' Procedure-level code.
    Debug.Print A ' Procedure-level code.
End Sub ' This statement ends a sub procedure block.
```

Note that script-level code resides outside any procedure blocks.

**property**
A named attribute of an object. Properties define object characteristics such as size, color, and screen location, or the state of an object, such as enabled or disabled.
**Public**

Variables declared using the **Public** Statement are visible to all procedures in all modules in all applications.

---

**run time**

The time when code is running. During **run time**, you can't edit the code.

---

**run-time error**

An error that occurs when code is running. A **run-time error** results when a statement attempts an invalid operation.

---

**scope**

 Defines the visibility of a variable, procedure, or object. For example, a variable declared as **Public** is visible to all procedures in all modules. Variables declared in procedures are visible only within the procedure and lose their value between calls.

---

**SCODE**

A long integer value that is used to pass detailed information to the caller of an interface member or API function. The status codes for OLE interfaces and APIs are defined in FACILITY_ITF.

---

**script level**

Any code outside a procedure is referred to as script-level code.

---

**seed**

An initial value used to generate pseudorandom numbers. For example, the **Randomize** statement creates a seed number used by the **Rnd** function to create unique pseudorandom number sequences.

---

**string comparison**

A comparison of two sequences of characters. Unless specified in the function making the comparison, all string comparisons are binary. In English, binary comparisons are case-sensitive; text comparisons are not.
**string expression**
Any expression that evaluates to a sequence of contiguous characters. Elements of a string expression can include a function that returns a string, a string literal, a string constant, or a string variable.

**type library**
A file or component within another file that contains standard descriptions of exposed objects, properties, and methods.

**variable**
A named storage location that can contain data that can be modified during program execution. Each variable has a name that uniquely identifies it within its level of scope.

Variable names:

- Must begin with an alphabetic character.
- Can't contain an embedded period or type-declaration character.
- Must be unique within the same scope.
- Must be no longer than 255 characters.
Operator

See Also

& Operator
- Operator
Arithmetic Operators
Concatenation Operators
Operator Precedence
Operator Summary
And Operator

See Also

Logical Operators
Not Operator
Operator Precedence
Operator Summary
Or Operator
Xor Operator
Array

Function

See Also

Dim Statement
Asc Function

See Also

Chr Function
Operator

See Also

Comparison Operators
Operator Precedence
Operator Summary
Set Statement
Function

See Also

Cos Function
Derived Math Functions
Sin Function
Tan Function
CBool Function

See Also

CByte Function
CCur Function
CDate Function
CDbl Function
CInt Function
CLng Function
CSng Function
CStr Function
CByte Function

See Also:

CBool Function
CCur Function
CDate Function
CDbl Function
CInt Function
CLng Function
CSng Function
CStr Function
CCur

Function

See Also

CBool Function
CByte Function
CDate Function
CDbl Function
CInt Function
CLng Function
CSng Function
CStr Function
CDate Function

See Also

IsDate Function
CDbl Function

See Also

CBool Function
CByte Function
CCur Function
CDate Function
CInt Function
CLng Function
CSng Function
CStr Function
Chr Function

See Also

Asc Function
CInt Function

See Also

CBool Function
CByte Function
CCur Function
CDate Function
CDbl Function
CLng Function
CSng Function
CStr Function
Int, Fix Functions
The following table lists the version of Microsoft Visual Basic Scripting Edition implemented by host applications.

<table>
<thead>
<tr>
<th>Host Application</th>
<th>VBScript Version</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>Microsoft Internet Explorer 3.0</td>
<td>x</td>
</tr>
<tr>
<td>Microsoft Internet Information Server 3.0</td>
<td></td>
</tr>
<tr>
<td>Microsoft Internet Explorer 4.0</td>
<td></td>
</tr>
<tr>
<td>Microsoft Internet Information Server 4.0</td>
<td></td>
</tr>
<tr>
<td>Microsoft Windows Scripting Host 1.0</td>
<td></td>
</tr>
<tr>
<td>Microsoft Outlook 98</td>
<td></td>
</tr>
<tr>
<td>Microsoft Visual Studio 6.0</td>
<td></td>
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<tr>
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The following table lists VBScript language features and the version when first introduced.

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- Date and Time Constants
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Operator Summary
Operator
See Also

+ Operator
Arithmetic Operators
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Operator Summary
Not Operator

See Also

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Xor Operator
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See Also

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- HelpContext Property
- HelpFile Property
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Oct Function

See Also

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See Also

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See Also

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Operator Summary
Or

**Operator**

See Also

- And Operator
- Logical Operators
- Not Operator
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- Operator Summary
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See Also

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IgnoreCase Property
Pattern

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See Also

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Public Statement
ReDim Statement
Set Statement
Property Get Statement

See Also

Class Statement
Dim Statement
Exit Statement
Function Statement
Private Statement
Property Let Statement
Property Set Statement
Public Statement
Set Statement
Sub Statement
Property Let Statement

See Also

Class Statement
Dim Statement
Exit Statement
Function Statement
Private Statement
Property Get Statement
Property Set Statement
Public Statement
Set Statement
Sub Statement
Property Set Statement

See Also

Class Statement
Dim Statement
Exit Statement
Function Statement
Private Statement
Property Get Statement
Property Let Statement
Public Statement
Set Statement
Sub Statement
Public Statement

See Also

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See Also

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See Also

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See Also

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See Also

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See Also

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See Also

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See Also

ScriptEngineBuildVersion Function
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**ScriptEngineBuildVersion Function**

See Also

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- [ScriptEngineMajorVersion Function](#)
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ScriptEngineMajorVersion Function

See Also

ScriptEngine Function
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ScriptEngineMinorVersion Function

See Also

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ScriptEngineBuildVersion Function
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See Also

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See Also

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See Also

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See Also

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Miscellaneous Constants
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See Also

Space Function
Statement

See Also

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Function

See Also

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See Also

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Replace Method
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See Also

DateSerial Function
DateValue Function
Hour Function
Minute Function
Now Function
Second Function
TimeValue Function
TimeValue Function

See Also

DateSerial Function
DateValue Function
Hour Function
Minute Function
Now Function
Second Function
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See Also

IsArray Function
IsDate Function
IsEmpty Function
IsNull Function
IsNumeric Function
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See Also

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LBound Function
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LCase Function
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See Also

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- Comparison Constants
- Date and Time Constants
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- Miscellaneous Constants
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IsNull Function
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See Also

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See Also

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See Also

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See Also

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See Also

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Miscellaneous Constants
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VarType Constants
Tristate

Constants

See Also

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Comparison Constants
Date and Time Constants
Date Format Constants
Miscellaneous Constants
MsgBox Constants
String Constants
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Comparison Operators

See Also

= Operator
Is Operator
Operator Precedence
Operator Summary
**ExecuteGlobal Statement**

**See Also**

**Description**

Executes one or more specified statements in the global namespace of a script.

**Syntax**

```
ExecuteGlobal statement
```

The required `statement` argument is a string expression containing one or more statements for execution. Include multiple statements in the `statement` argument, using colons or embedded line breaks to separate them.

**Remarks**

In VBScript, \( x = y \) can be interpreted two ways. The first is as an assignment statement, where the value of \( y \) is assigned to \( x \). The second interpretation is as an expression that tests if \( x \) and \( y \) have the same value. If they do, `result` is **True**; if they are not, `result` is **False**. The `ExecuteGlobal` statement always uses the first interpretation, whereas the `Eval` method always uses the second.

**Note** In Microsoft® JScript, no confusion exists between assignment and comparison, because the assignment operator (=) is different from the comparison operator(==).

All statements used with `ExecuteGlobal` are executed in the script's global namespace. This allows code to be added to the program so that any `procedure` can access it. For example, a VBScript `Class` statement can be executed at run time and functions can subsequently create new instances of the class.

Adding procedures and classes at runtime can be useful, but also introduces the possibility of overwriting existing global variables and functions at runtime. Because this can cause significant programming problems, care should be exercised when using the `ExecuteGlobal` statement. If you don't need access to a variable or function outside of a procedure, use the `Execute` statement which
will only affect the namespace of the calling function.

The following example illustrates the use of the **ExecuteGlobal** statement:

```
Dim X ' Declare X in global scope.
X = "Global" ' Assign global X a value.

Sub Proc1 ' Declare procedure.
    Dim X ' Declare X in local scope.
    X = "Local" ' Assign local X a value.
    ' The Execute statement here creates a
    ' procedure that, when invoked, prints X.
    ' It print the global X because Proc2
    ' inherits everything in global scope.
    ExecuteGlobal "Sub Proc2: Print X: End Sub"
    Print Eval("X") ' Print local X.
Proc2 ' Invoke Proc2 in Global scope resulting
    ' in "Global" being printed.
End Sub
Proc2 ' This line causes an error since
    ' Proc2 is unavailable outside Proc1.
Proc1 ' Invoke Proc1.
    Execute "Sub Proc2: Print X: End Sub"
Proc2 ' This invocation succeeds because Proc2
    ' is now available globally.
```

The following example shows how the **ExecuteGlobal** statement can be rewritten so you don't have to enclose the entire procedure in the quotation marks:

```
S = "Sub Proc2" & vbCrLf
S = S & " Print X" & vbCrLf
S = S & "End Sub"
    ExecuteGlobal S
```
GetLocale Function

Description

Returns the current locale ID value.

Syntax

GetLocale()

Remarks

A locale is a set of user preference information related to the user's language, country/region, and cultural conventions. The locale determines such things as keyboard layout, alphabetic sort order, as well as date, time, number, and currency formats.

The return value can be any of the 32-bit values shown in the Locale ID chart:

The following example illustrates the use of the GetLocale function. To use this code, paste the entire example between the <BODY> tag of a standard HTML page.

Enter Date in UK format: <input type="text" id="UKDate" size="".
Here's the US equivalent: <input type="text" id="USdate" size="2
<input type="button" value="Convert" id="button1"><p>
Enter a price in German: &nbsp; <input type="text" id="GermanNumber" size="".
<p>
Here's the UK equivalent: <input type="text" id="USNumber" size=""
<input type="button" value="Convert" id="button2"><p>

<script language="vbscript">
Dim currentLocale
' Get the current locale
currentLocale = GetLocale

Sub Button1_onclick
    Dim original
    original = SetLocale("en-gb")
    mydate = CDate(UKDate.value)
    ' IE always sets the locale to US English so use the
    ' currentLocale variable to set the locale to US English
    original = SetLocale(currentLocale)
    USDate.value = FormatDateTime(mydate, vbShortDate)
End Sub

Sub button2_onclick
    Dim original
    original = SetLocale("de")
    myvalue = CCur(GermanNumber.value)
    original = SetLocale("en-gb")
    USNumber.value = FormatCurrency(myvalue)
End Sub

&lt;/script&gt;
<table>
<thead>
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<th>Short String</th>
<th>Hex Value</th>
<th>Decimal Value</th>
<th>Locale Description</th>
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SetLocale Function

Description

Sets the global locale and returns the previous locale.

Syntax

SetLocale(lcid)

The lcid argument can be any valid 32-bit value or short string that uniquely identifies a geographical locale. Recognized values can be found in the Locale ID chart.

Remarks

If lcid is zero, the locale is set to match the current system setting.

A locale is a set of user preference information related to the user's language, country/region, and cultural conventions. The locale determines such things as keyboard layout, alphabetic sort order, as well as date, time, number, and currency formats.

The following example illustrates the use of the SetLocale function. To use this code, paste the entire example between the <BODY> tags of a standard HTML page.
Enter Date in UK format: <input type="text" id="UKDate" size="20"><p>
Here's the US equivalent: <input type="text" id="USdate" size="20"><p><input type="button" value="Convert" id="button1"><p>
Enter a price in German: &nbsp; <input type="text" id="GermanNumber" size="20"><p>
Here's the UK equivalent: <input type="text" id="USNumber" size="20"><p><input type="button" value="Convert" id="button2"><p>

<script language="vbscript">
Dim currentLocale
' Get the current locale
currentLocale = GetLocale

Sub Button1_onclick
  Dim original
  original = SetLocale("en-gb")
  mydate = CDate(UKDate.value)
  ' IE always sets the locale to US English so use th
  ' currentLocale variable to set the locale to US En
  original = SetLocale(currentLocale)
  USDate.value = FormatDateTime(mydate,vbShortDate)
End Sub

Sub button2_onclick
  Dim original
</script>
original = SetLocale("de")
myvalue = CCur(GermanNumber.value)
original = SetLocale("en-gb")
USNumber.value = FormatCurrency(myvalue)
End Sub

</script>
Add Method
(Dictionary)
See Also

Add Method (Folders)
Exists Method
Items Method
Keys Method
Remove Method
RemoveAll Method
Add Method (Dictionary) Applies To Dictionary Object
Add Method (Folders)

See Also

Add Method (Dictionary)
Add Method (Folders)
Applies To

Folders Collection
AtEndOfLine Property

See Also

AtEndOfStream Property
Column Property
Line Property
AtEndOfLine Property
Applies To

TextStream Object
AtEndOfStream Property

See Also

AtEndOfLine Property
Column Property
Line Property
AtEndOfStream Property
Applies To

TextStream Object
Attributes

Property

See Also

DateCreated Property
DateLastAccessed Property
DateLastModified Property
Drive Property
Files Property
IsRootFolder Property
Name Property
ParentFolder Property
Path Property
ShortName Property
ShortPath Property
Size Property
SubFolders Property
Type Property
### Attributes

### Property

**Applies To**

| File Object |
| Folder Object |
AvailableSpace Property

See Also

DriveLetter Property
DriveType Property
FileSystem Property
FreeSpace Property
IsReady Property
Path Property
RootFolder Property
SerialNumber Property
ShareName Property
TotalSize Property
VolumeName Property
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BuildPath Method

See Also

GetAbsolutePathName Method
GetBaseName Method
GetDriveName Method
GetExtensionName Method
GetFileName Method
GetParentFolderName Method
GetTempName Method
BuildPath Method

Applies To

FileSystemObject Object
Close Method

See Also

Read Method
ReadAll Method
ReadLine Method
Skip Method
SkipLine Method
Write Method
WriteLine Method
WriteBlankLines Method
Close Method

Applies To

TextStream Object
Column

Property

See Also

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Copy

Method

See Also

CopyFile Method
CopyFolder Method
Delete Method
Move Method
OpenAsTextStream Method
Copy

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Applies To

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Folder Object
CopyFile Method

See Also

Copy Method
CopyFolder Method
CreateTextFile Method
DeleteFile Method
MoveFile Method
CopyFile Method

Applies To

FileSystemObject Object
CopyFolder Method

See Also

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CreateFolder Method
DeleteFolder Method
MoveFolder Method
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Applies To

FileSystemObject Object
Count Property

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CompareMode Property
Item Property
Key Property
Count

Property

Applies To

- Dictionary Object
- Drives Collection
- Files Collection
- Folders Collection
- Matches Collection
CreateFolder Method

See Also

CopyFolder Method
DeleteFolder Method
MoveFolder Method
CreateFolder Method
Applies To

FileSystemObject Object
CreateTextFile Method

See Also

CreateFolder Method
OpenAsTextStream Method
OpenTextFile Method
CreateTextFile Method
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Folder Object
DateCreated Property

See Also

Attributes Property
DateLastAccessed Property
DateLastModified Property
Drive Property
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IsRootFolder Property
Name Property
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Path Property
ShortName Property
ShortPath Property
Size Property
SubFolders Property
Type Property
DateCreated Property

Applies To

File Object
Folder Object
DateLastAccessed Property

See Also

Attributes Property
DateCreated Property
DateLastModified Property
Drive Property
Files Property
IsRootFolder Property
Name Property
ParentFolder Property
Path Property
ShortName Property
ShortPath Property
Size Property
SubFolders Property
Type Property
DateLastAccessed Property

Applies To

File Object
Folder Object
DateLastModified Property

See Also

Attributes Property
DateCreated Property
DateLastAccessed Property
Drive Property
Files Property
IsRootFolder Property
Name Property
ParentFolder Property
Path Property
ShortName Property
ShortPath Property
Size Property
SubFolders Property
Type Property
DateLastModified

Property

Applies To

File Object
Folder Object
Delete Method

See Also

Copy Method
DeleteFile Method
DeleteFolder Method
Move Method
OpenAsTextStream Method
Delete

Method

Applies To

- File Object
- Folder Object
DeleteFile Method

See Also

CopyFile Method
CreateTextFile Method
Delete Method
DeleteFolder Method
MoveFile Method
DeleteFile Method

Applies To

FileSystemObject Object
DeleteFolder Method

See Also

* CopyFolder Method
* CreateFolder Method
* Delete Method
* DeleteFile Method
* MoveFolder Method
DeleteFolder Method

Applies To

FileSystemObject Object
Dictionary Object

See Also

FileSystemObject Object
TextStream Object
## Dictionary Object Properties

- [CompareMode Property](#)
- [Count Property](#)
- [Item Property](#)
- [Key Property](#)
# Dictionary Object

## Methods

- **Add Method (Dictionary)**
- **Exists Method**
- **Items Method**
- **Keys Method**
- **Remove Method**
- **RemoveAll Method**
Drive Object

See Also

Drives Collection
File Object
Files Collection
Folder Object
Folders Collection
GetDrive Method
# Drive Object Properties

- [AvailableSpace Property](#)
- [DriveLetter Property](#)
- [DriveType Property](#)
- [FileSystem Property](#)
- [FreeSpace Property](#)
- [IsReady Property](#)
- [Path Property](#)
- [RootFolder Property](#)
- [SerialNumber Property](#)
- [ShareName Property](#)
- [TotalSize Property](#)
- [VolumeName Property](#)
Drive

Object Methods

The **Drive** object has no methods.
### Drive Property

#### See Also

- Attributes Property
- DateCreated Property
- DateLastAccessed Property
- DateLastModified Property
- Files Property
- IsRootFolder Property
- Name Property
- ParentFolder Property
- Path Property
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- SubFolders Property
- Type Property
Property
Applies To

File Object
Folder Object
DriveExists Method

See Also

Drive Object
Drives Collection
FileExists Method
FolderExists Method
GetDrive Method
GetDriveName Method
IsReady Property
DriveExists Method
Applies To

FileSystemObject Object
DriveLetter Property

See Also

AvailableSpace Property
DriveType Property
FileSystem Property
FreeSpace Property
IsReady Property
Path Property
RootFolder Property
SerialNumber Property
ShareName Property
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Drive Object
Drives Collection

See Also

Drive Object
Drives Property
File Object
Files Collection
Folder Object
Folders Collection
Drives Collection Properties

Count Property
Item Property
The **Drives** collection has no methods.
Drives Property

See Also

Drives Collection
Files Property
SubFolders Property
Drives

Property Applies To

FileSystemObject Object
DriveType Constants

See Also

Comparison Constants
File Attribute Constants
File Input/Output Constants
SpecialFolder Constants
Tristate Constants
DriveType Property

See Also

AvailableSpace Property
DriveLetter Property
FileSystem Property
FreeSpace Property
IsReady Property
Path Property
RootFolder Property
SerialNumber Property
ShareName Property
TotalSize Property
VolumeName Property
DriveType

Property

Applies To

Drive Object
Exists Method

See Also

- Add Method (Dictionary)
- Items Method
- Keys Method
- Remove Method
- RemoveAll Method
Exists Method
Applies To

Dictionary Object
FileAttribute Constants

See Also

Comparison Constants
DriveType Constants
File Input/Output Constants
SpecialFolder Constants
Tristate Constants
File

Input/Output Constants

See Also

Comparison Constants
DriveType Constants
File Attribute Constants
SpecialFolder Constants
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FileExists Method

See Also

DriveExists Method
FolderExists Method
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GetFileName Method
FileExists Method
Applies To

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See Also

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<td>ShortName Property</td>
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<td>Type Property</td>
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File

Object Methods

- Copy Method
- Delete Method
- Move Method
- OpenAsTextStream Method
Files

See Also

- Drive Object
- Drives Collection
- File Object
- Folder Object
- Folders Collection
Files

Collection Properties

Count Property
Item Property
The **Files** collection has no methods.
Property

See Also

Attributes Property
DateCreated Property
DateLastAccessed Property
DateLastModified Property
Drives Property
IsRootFolder Property
Name Property
ParentFolder Property
Path Property
ShortName Property
ShortPath Property
Size Property
SubFolders Property
Type Property
### Files

**Property Applies To**

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**FileSystemObject Object**

See Also

- CreateObject Function
- Dictionary Object
- Drive Object
- Drives Collection
- File Object
- FileSystem Property
- Files Collection
- Folder Object
- Folders Collection
- TextStream Object
FileSystemObject

Object Properties

Drives Property
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GetDrive Method
GetDriveName Method
GetExtensionName Method
GetFile Method
GetFileName Method
GetFolder Method
GetParentFolderName Method
GetSpecialFolder Method
GetTempName Method
MoveFile Method
MoveFolder Method
OpenTextFile Method
**FileSystemObject Constants**

**See Also**

[VBScript Constants](#)
See Also

AvailableSpace Property
DriveLetter Property
DriveType Property
FileSystemObject Object
FreeSpace Property
IsReady Property
Path Property
RootFolder Property
SerialNumber Property
ShareName Property
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Property
Applies To

Drive Object
Folder Object

See Also

Drive Object
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Folder Object

Methods

Copy Method
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Move Method
CreateTextFile Method
Folders

Collection

See Also

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File Object
Files Collection
Folder Object
SubFolders Property
Folders

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FileExists Method
GetFolder Method
GetParentFolderName Method
FolderExists Method Applies To FileSystemObject Object
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See Also

AvailableSpace Property
DriveLetter Property
DriveType Property
FileSystem Property
IsReady Property
Path Property
RootFolder Property
SerialNumber Property
ShareName Property
TotalSize Property
VolumeName Property
FreeSpace Property

Applies To

Drive Object
GetAbsolutePathName Method

See Also

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GetDrive Method
GetDriveName Method
GetExtensionName Method
GetFile Method
GetFileName Method
GetFileVersion Method
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Applies To

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See Also

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GetDriveName Method
GetExtensionName Method
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Applies To

FileSystemObject Object
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Scripting Run-Time Reference
GetDrive Method

Applies To

FileSystemObject Object
GetDriveName Method

See Also

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GetDrive Method
GetExtensionName Method
GetFile Method
GetFileName Method
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GetFolder Method
GetParentFolderName Method
GetSpecialFolder Method
GetTempName Method
GetDriveName Method
Applies To

FileSystemObject Object
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GetBaseName Method
GetDrive Method
GetDriveName Method
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GetFolder Method
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Applies To

FileSystemObject Object
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See Also

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GetBaseName Method
GetDrive Method
GetDriveName Method
GetExtensionName Method
GetFileName Method
GetFileVersion Method
GetFolder Method
GetParentFolderName Method
GetSpecialFolder Method
GetTempName Method
### GetFile Method

**Applies To**

- `FileSystemObject` Object
GetFileName Method

See Also

GetAbsolutePathName Method
GetBaseName Method
GetDrive Method
GetDriveName Method
GetExtensionName Method
GetFile Method
GetFileVersion Method
GetFolder Method
GetParentFolderName Method
GetSpecialFolder Method
GetTempName Method
GetFileName Method

Applies To

FileSystemObject Object
GetFileVersion Method

See Also

GetAbsolutePathName Method
GetBaseName Method
GetDrive Method
GetDriveName Method
GetExtensionName Method
GetFile Method
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GetFolder Method
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GetSpecialFolder Method
GetTempName Method
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Applies To

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See Also

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GetBaseName Method
GetDrive Method
GetDriveName Method
GetExtensionName Method
GetFile Method
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GetFileVersion Method
GetParentFolderName Method
GetSpecialFolder Method
GetTempName Method
GetFolder Method

Applies To

FileSystemObject Object
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See Also

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GetBaseName Method
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Applies To

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Applies To

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Applies To

FileSystemObject Object
IsReady

Property

See Also

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DriveLetter Property
DriveType Property
FileSystem Property
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VolumeName Property
### IsReady Property

**Applies To**

- Drive Object

[Scripting Run-Time Reference](#)
IsRootFolder Property

See Also

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DateCreated Property
DateLastAccessed Property
DateLastModified Property
Drive Property
Files Property
Name Property
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IsRootFolder Property
Applies To

Folder Object
Item

Property

See Also

CompareMode Property
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## Item

### Property

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Items

Method

See Also

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**array**
A set of sequentially indexed elements having the same type of data. Each element of an array has a unique identifying index number. Changes made to one element of an array do not affect the other elements.

**collection**
An object that contains a set of related objects. An object's position in the collection can change whenever a change occurs in the collection; therefore, the position of any specific object in the collection may vary.

**run-time error**
An error that occurs when code is running. A run-time error results when a statement attempts an invalid operation.

**string expression**
Any expression that evaluates to a sequence of contiguous characters. Elements of a string expression can include a function that returns a string, a string literal, a string constant, or a string variable.

**type library**
A file or component within another file that contains standard descriptions of exposed objects, properties, and methods.
Keys

Method

See Also

Add Method (Dictionary)
Exists Method
Items Method
Remove Method
RemoveAll Method
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Delete Method
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MoveFolder Method
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Microsoft® Visual Basic® Scripting Edition

MoveFile Method

Applies To

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MoveFolder Method

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CreateFolder Method
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GetFolder Method
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<tr>
<td>Attributes</td>
</tr>
<tr>
<td>DateCreated</td>
</tr>
<tr>
<td>DateLastAccessed</td>
</tr>
<tr>
<td>DateLastModified</td>
</tr>
<tr>
<td>Drive</td>
</tr>
<tr>
<td>Files</td>
</tr>
<tr>
<td>IsRootFolder</td>
</tr>
<tr>
<td>ParentFolder</td>
</tr>
<tr>
<td>Path</td>
</tr>
<tr>
<td>ShortName</td>
</tr>
<tr>
<td>ShortPath</td>
</tr>
<tr>
<td>Size</td>
</tr>
<tr>
<td>SubFolders</td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>------</td>
</tr>
</tbody>
</table>

### Property

**Applies To**

- File Object
- Folder Object
OpenAsTextStream Method

See Also

Copy Method
CreateTextFile Method
Delete Method
Move Method
OpenTextFile Method
OpenAsTextStream
Method
Applies To

File Object
OpenTextFile Method

See Also

OpenAsTextStream Method
CreateTextFile Method
OpenTextFile Method

Applies To

FileSystemObject Object
Microsoft® Visual Basic® Scripting Edition

ParentFolder Property

See Also

Attributes Property
DateCreated Property
DateLastAccessed Property
DateLastModified Property
Drive Property
Files Property
IsRootFolder Property
Name Property
Path Property
ShortName Property
ShortPath Property
Size Property
SubFolders Property
Type Property
ParentFolder Property
Applies To

File Object
Folder Object
Path

Property

See Also

- Attributes Property
- AvailableSpace Property
- DateCreated Property
- DateLastAccessed Property
- DateLastModified Property
- Drive Property
- DriveLetter Property
- DriveType Property
- Files Property
- FileSystem Property
- FreeSpace Property
- IsReady Property
- IsRootFolder Property
- Name Property
- ParentFolder Property
- RootFolder Property
- SerialNumber Property
- ShareName Property
- ShortName Property
- ShortPath Property
- Size Property
- SubFolders Property
- TotalSize Property
- Type Property
- VolumeName Property
Path

Property

Applies To

Drive Object
File Object
Folder Object
Microsoft® Visual Basic® Scripting Edition

Read Method

See Also

Close Method
ReadAll Method
ReadLine Method
Skip Method
SkipLine Method
Write Method
WriteLine Method
WriteBlankLines Method

Scripting Run-Time Reference
Method
Applies To

TextStream Object
ReadAll Method

See Also

Close Method
Read Method
ReadLine Method
Skip Method
SkipLine Method
Write Method
WriteLine Method
WriteBlankLines Method
Microsoft® Visual Basic® Scripting Edition

**ReadAll**

**Method**

Applies To

**TextStream Object**
ReadLine Method

See Also

Close Method
Read Method
ReadAll Method
Skip Method
SkipLine Method
Write Method
WriteLine Method
WriteBlankLines Method
## ReadLine Method

Appplies To

<table>
<thead>
<tr>
<th>TextStream Object</th>
</tr>
</thead>
</table>
Remove Method

See Also

Add Method (Dictionary)
Exists Method
Items Method
Keys Method
RemoveAll Method
Remove Method
Applies To
Dictionary Object
RemoveAll Method

See Also

Add Method (Dictionary)
Exists Method
Items Method
Keys Method
Remove Method
RemoveAll Method
Applies To

Dictionary Object
RootFolder Property

See Also

AvailableSpace Property
DriveLetter Property
DriveType Property
FileSystem Property
FreeSpace Property
IsReady Property
Path Property
SerialNumber Property
ShareName Property
TotalSize Property
VolumeName Property
RootFolder Property

Applies To

Drive Object
SerialNumber Property

See Also

AvailableSpace Property
DriveLetter Property
DriveType Property
FileSystem Property
FreeSpace Property
IsReady Property
Path Property
RootFolder Property
ShareName Property
TotalSize Property
VolumeName Property
<table>
<thead>
<tr>
<th>SerialNumber Property</th>
<th>Applies To</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Drive Object</td>
</tr>
</tbody>
</table>

Scripting Run-Time Reference
ShareName Property

See Also

AvailableSpace Property
DriveLetter Property
DriveType Property
FileSystem Property
FreeSpace Property
IsReady Property
Path Property
RootFolder Property
SerialNumber Property
TotalSize Property
VolumeName Property
ShareName Property
Applies To

Drive Object
ShortName Property

See Also

Attributes Property
DateCreated Property
DateLastAccessed Property
DateLastModified Property
Drive Property
Files Property
IsRootFolder Property
Name Property
ParentFolder Property
Path Property
ShortPath Property
Size Property
SubFolders Property
Type Property
ShortName Property
Applies To

File Object
Folder Object
ShortPath Property

See Also

Attributes Property
DateCreated Property
DateLastAccessed Property
DateLastModified Property
Drive Property
Files Property
IsRootFolder Property
Name Property
ParentFolder Property
Path Property
ShortName Property
Size Property
SubFolders Property
Type Property
ShortPath Property

Applies To

File Object
Folder Object
Size

Property

See Also

Attributes Property
DateCreated Property
DateLastAccessed Property
DateLastModified Property
Drive Property
Files Property
IsRootFolder Property
Name Property
ParentFolder Property
Path Property
ShortName Property
ShortPath Property
SubFolders Property
Type Property
Microsoft® Visual Basic® Scripting Edition

Size

Property

Applies To

File Object
Folder Object
Method

See Also

Close Method
Read Method
ReadAll Method
ReadLine Method
SkipLine Method
Write Method
WriteLine Method
WriteBlankLines Method
Method
Applies To

TextStream Object
SkipLine Method

See Also

Close Method
Read Method
ReadAll Method
ReadLine Method
Skip Method
Write Method
WriteLine Method
WriteBlankLines Method
SkipLine Method

Applies To

TextStream Object
SpecialFolder Constants

See Also

Comparison Constants
DriveType Constants
FileAttribute Constants
File Input/Output Constants
Tristate Constants
SubFolders

Property

See Also

Attributes Property
DateCreated Property
DateLastAccessed Property
DateLastModified Property
Drive Property
Files Property
IsRootFolder Property
Name Property
ParentFolder Property
Path Property
ShortName Property
ShortPath Property
Size Property
Type Property
SubFolders Property
Applies To

Folder Object
TextStream Object

See Also

Dictionary Object
FileSystemObject Object
TextStream Object  Scripting Run-Time Reference

Properties

AtEndOfLine Property
AtEndOfStream Property
Column Property
Line Property
# TextStream Object

**Methods**

- Close Method
- Read Method
- ReadAll Method
- ReadLine Method
- Skip Method
- SkipLine Method
- Write Method
- WriteLine Method
- WriteBlankLines Method
TotalSize Property

See Also

AvailableSpace Property
DriveLetter Property
DriveType Property
FileSystem Property
FreeSpace Property
IsReady Property
Path Property
RootFolder Property
SerialNumber Property
ShareName Property
VolumeName Property
TotalSize Property

Applies To

Drive Object
**Type**

**Property**

**See Also**

- Attributes Property
- DateCreated Property
- DateLastAccessed Property
- DateLastModified Property
- Drive Property
- Files Property
- IsRootFolder Property
- Name Property
- ParentFolder Property
- Path Property
- ShortName Property
- ShortPath Property
- Size Property
- SubFolders Property
## Property

### Applies To

<table>
<thead>
<tr>
<th>Type</th>
<th>Applies To</th>
</tr>
</thead>
<tbody>
<tr>
<td>File Object</td>
<td></td>
</tr>
<tr>
<td>Folder Object</td>
<td></td>
</tr>
</tbody>
</table>
VolumeName
Property

See Also

AvailableSpace Property
DriveLetter Property
DriveType Property
FileSystem Property
FreeSpace Property
IsReady Property
Path Property
RootFolder Property
SerialNumber Property
ShareName Property
TotalSize Property
VolumeName

Property

Applies To

---

Drive Object
Write Method

See Also

Close Method
Read Method
ReadAll Method
ReadLine Method
Skip Method
SkipLine Method
WriteLine Method
WriteBlankLines Method
Write

Method

Applies To

TextStream Object
WriteBlankLines Method

See Also

Close Method
Read Method
ReadAll Method
ReadLine Method
Skip Method
SkipLine Method
Write Method
WriteLine Method
WriteBlankLines Method
Applies To

TextStream Object
WriteLine Method

See Also

Close Method
Read Method
ReadAll Method
ReadLine Method
Skip Method
SkipLine Method
Write Method
WriteBlankLines Method
**WriteLine Method**

*Applies To*

**TextStream Object**
InStrRev Function

See Also

InStr Function
Arithmetic Operators

^ Operator
* Operator
/ Operator
\ Operator
Mod Operator
+ Operator
- Operator
Concatenation Operators
Concatenation Operators

& Operator
+ Operator
Operator Summary

See Also

Arithmetic Operators

Operators used to perform mathematical calculations.

Assignment Operator

Operator used to assign a value to a property or variable.

Comparison Operators

Operators used to perform comparisons.

Concatenation Operators

Operators used to combine strings.

Logical Operators

Operators used to perform logical operations.
Logical Operators

And Operator
Not Operator
Or Operator
Xor Operator
Derived Math Functions

Description

The following nonintrinsic math functions can be derived from the intrinsic math functions:

<table>
<thead>
<tr>
<th>Function</th>
<th>Derived equivalents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secant</td>
<td>Sec(X) = 1 / Cos(X)</td>
</tr>
<tr>
<td>Cosecant</td>
<td>Cosec(X) = 1 / Sin(X)</td>
</tr>
<tr>
<td>Cotangent</td>
<td>Cotan(X) = 1 / Tan(X)</td>
</tr>
<tr>
<td>Inverse Sine</td>
<td>Arcsin(X) = Atn(X / Sqr(-X * X + 1))</td>
</tr>
<tr>
<td>Inverse Cosine</td>
<td>Arccos(X) = Atn(-X / Sqr(-X * X + 1)) + 2 * Atn(1)</td>
</tr>
<tr>
<td>Inverse Secant</td>
<td>Arcsec(X) = Atn(X / Sqr(X * X - 1)) + Sgn((X) -1) * (2 * Atn(1))</td>
</tr>
<tr>
<td>Inverse Cosecant</td>
<td>Arccosec(X) = Atn(X / Sqr(X * X - 1)) + (Sgn(X) - 1) * (2 * Atn(1))</td>
</tr>
<tr>
<td>Inverse Cotangent</td>
<td>Arccotan(X) = Atn(X) + 2 * Atn(1)</td>
</tr>
<tr>
<td>Hyperbolic Sine</td>
<td>HSin(X) = (Exp(X) - Exp(-X)) / 2</td>
</tr>
<tr>
<td>Hyperbolic Cosine</td>
<td>HCos(X) = (Exp(X) + Exp(-X)) / 2</td>
</tr>
<tr>
<td>Hyperbolic Tangent</td>
<td>HTan(X) = (Exp(X) - Exp(-X)) / (Exp(X) + Exp(-X))</td>
</tr>
<tr>
<td>Hyperbolic Secant</td>
<td>HSec(X) = 2 / (Exp(X) + Exp(-X))</td>
</tr>
<tr>
<td>Hyperbolic Cosecant</td>
<td>HCosec(X) = 2 / (Exp(X) - Exp(-X))</td>
</tr>
<tr>
<td>Hyperbolic</td>
<td>HCotan(X) = (Exp(X) + Exp(-X)) / (Exp(X))</td>
</tr>
<tr>
<td>Function</td>
<td>Formula</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Cotangent</td>
<td>$- \exp(-X)$</td>
</tr>
<tr>
<td>Inverse Hyperbolic Sine</td>
<td>$\text{HArcsin}(X) = \log(X + \sqrt{X \times X + 1})$</td>
</tr>
<tr>
<td>Inverse Hyperbolic Cosine</td>
<td>$\text{HArccos}(X) = \log(X + \sqrt{X \times X - 1})$</td>
</tr>
<tr>
<td>Inverse Hyperbolic Tangent</td>
<td>$\text{HArctan}(X) = \log((1 + X) / (1 - X)) / 2$</td>
</tr>
<tr>
<td>Inverse Hyperbolic Secant</td>
<td>$\text{HArcsec}(X) = \log\left( (\sqrt{-X \times X + 1} + 1) / X \right)$</td>
</tr>
<tr>
<td>Inverse Hyperbolic Cosecant</td>
<td>$\text{HArc cosec}(X) = \log\left( (\text{sgn}(X) \times \sqrt{X \times X + 1} + 1) / X \right)$</td>
</tr>
<tr>
<td>Inverse Hyperbolic Cotangent</td>
<td>$\text{HArc cotan}(X) = \log\left( (X + 1) / (X - 1) \right) / 2$</td>
</tr>
<tr>
<td>Logarithm to base $N$</td>
<td>$\log_N(X) = \log(X) / \log(N)$</td>
</tr>
</tbody>
</table>
### VBScript Error Messages

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Invalid procedure call or argument</td>
</tr>
<tr>
<td>6</td>
<td>Overflow</td>
</tr>
<tr>
<td>7</td>
<td>Out of memory</td>
</tr>
<tr>
<td>9</td>
<td>Subscript out of range</td>
</tr>
<tr>
<td>10</td>
<td>Array fixed or temporarily locked</td>
</tr>
<tr>
<td>11</td>
<td>Division by zero</td>
</tr>
<tr>
<td>13</td>
<td>Type mismatch</td>
</tr>
<tr>
<td>14</td>
<td>Out of string space</td>
</tr>
<tr>
<td>28</td>
<td>Out of stack space</td>
</tr>
<tr>
<td>35</td>
<td>Sub or Function not defined</td>
</tr>
<tr>
<td>48</td>
<td>Error in loading DLL</td>
</tr>
<tr>
<td>51</td>
<td>Internal error</td>
</tr>
<tr>
<td>53</td>
<td>File not found</td>
</tr>
<tr>
<td>57</td>
<td>Device I/O error</td>
</tr>
<tr>
<td>58</td>
<td>File already exists</td>
</tr>
<tr>
<td>61</td>
<td>Disk full</td>
</tr>
<tr>
<td>67</td>
<td>Too many files</td>
</tr>
<tr>
<td>70</td>
<td>Permission denied</td>
</tr>
<tr>
<td>75</td>
<td>Path/File access error</td>
</tr>
<tr>
<td>76</td>
<td>Path not found</td>
</tr>
<tr>
<td>91</td>
<td>Object variable or With block variable not set</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>92</td>
<td><strong>For</strong> loop not initialized</td>
</tr>
<tr>
<td>94</td>
<td>Invalid use of <strong>Null</strong></td>
</tr>
<tr>
<td>322</td>
<td>Can't create necessary temporary file</td>
</tr>
<tr>
<td>424</td>
<td>Object required</td>
</tr>
<tr>
<td>429</td>
<td>ActiveX component can't create object</td>
</tr>
<tr>
<td>430</td>
<td>Class doesn't support Automation</td>
</tr>
<tr>
<td>432</td>
<td>File name or class name not found during Automation operation</td>
</tr>
<tr>
<td>438</td>
<td>Object doesn't support this property or method</td>
</tr>
<tr>
<td>440</td>
<td>Automation error</td>
</tr>
<tr>
<td>445</td>
<td>Object doesn't support this action</td>
</tr>
<tr>
<td>446</td>
<td>Object doesn't support named arguments</td>
</tr>
<tr>
<td>447</td>
<td>Object doesn't support current locale setting</td>
</tr>
<tr>
<td>448</td>
<td>Named argument not found</td>
</tr>
<tr>
<td>449</td>
<td>Argument not optional</td>
</tr>
<tr>
<td>450</td>
<td>Wrong number of arguments or invalid property assignment</td>
</tr>
<tr>
<td>451</td>
<td>Object not a collection</td>
</tr>
<tr>
<td>453</td>
<td>Specified DLL function not found</td>
</tr>
<tr>
<td>455</td>
<td>Code resource lock error</td>
</tr>
<tr>
<td>457</td>
<td>This key already associated with an element of this collection</td>
</tr>
<tr>
<td>458</td>
<td>Variable uses an Automation type not supported in VBScript</td>
</tr>
<tr>
<td>500</td>
<td>Variable is undefined</td>
</tr>
<tr>
<td>501</td>
<td>Illegal assignment</td>
</tr>
<tr>
<td>502</td>
<td>Object not safe for scripting</td>
</tr>
<tr>
<td>503</td>
<td>Object not safe for initializing</td>
</tr>
<tr>
<td>1001</td>
<td>Out of memory</td>
</tr>
<tr>
<td>1002</td>
<td>Syntax error</td>
</tr>
<tr>
<td>1003</td>
<td>Expected ':'</td>
</tr>
<tr>
<td>Line</td>
<td>Error Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------------</td>
</tr>
<tr>
<td>1004</td>
<td>Expected ';'</td>
</tr>
<tr>
<td>1005</td>
<td>Expected '('</td>
</tr>
<tr>
<td>1006</td>
<td>Expected ')'</td>
</tr>
<tr>
<td>1007</td>
<td>Expected ']'</td>
</tr>
<tr>
<td>1008</td>
<td>Expected '{'</td>
</tr>
<tr>
<td>1009</td>
<td>Expected '}')</td>
</tr>
<tr>
<td>1010</td>
<td>Expected identifier</td>
</tr>
<tr>
<td>1011</td>
<td>Expected '='</td>
</tr>
<tr>
<td>1012</td>
<td>Expected 'If'</td>
</tr>
<tr>
<td>1013</td>
<td>Expected 'To'</td>
</tr>
<tr>
<td>1014</td>
<td>Expected 'End'</td>
</tr>
<tr>
<td>1015</td>
<td>Expected 'Function'</td>
</tr>
<tr>
<td>1016</td>
<td>Expected 'Sub'</td>
</tr>
<tr>
<td>1017</td>
<td>Expected 'Then'</td>
</tr>
<tr>
<td>1018</td>
<td>Expected 'Wend'</td>
</tr>
<tr>
<td>1019</td>
<td>Expected 'Loop'</td>
</tr>
<tr>
<td>1020</td>
<td>Expected 'Next'</td>
</tr>
<tr>
<td>1021</td>
<td>Expected 'Case'</td>
</tr>
<tr>
<td>1022</td>
<td>Expected 'Select'</td>
</tr>
<tr>
<td>1023</td>
<td>Expected expression</td>
</tr>
<tr>
<td>1024</td>
<td>Expected statement</td>
</tr>
<tr>
<td>1025</td>
<td>Expected end of statement</td>
</tr>
<tr>
<td>1026</td>
<td>Expected integer constant</td>
</tr>
<tr>
<td>1027</td>
<td>Expected 'While' or 'Until'</td>
</tr>
<tr>
<td>1028</td>
<td>Expected 'While', 'Until', or end of statement</td>
</tr>
<tr>
<td>1029</td>
<td>Too many locals or arguments</td>
</tr>
<tr>
<td>1030</td>
<td>Identifier too long</td>
</tr>
<tr>
<td>1031</td>
<td>Invalid number</td>
</tr>
<tr>
<td>1032</td>
<td>Invalid character</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1033</td>
<td>Unterminated string constant</td>
</tr>
<tr>
<td>1034</td>
<td>Unterminated comment</td>
</tr>
<tr>
<td>1035</td>
<td>Nested comment</td>
</tr>
<tr>
<td>1037</td>
<td>Invalid use of 'Me' keyword</td>
</tr>
<tr>
<td>1038</td>
<td>'Loop' without 'Do'</td>
</tr>
<tr>
<td>1039</td>
<td>Invalid 'Exit' statement</td>
</tr>
<tr>
<td>1040</td>
<td>Invalid 'For' loop control variable</td>
</tr>
<tr>
<td>1041</td>
<td>Name redefined</td>
</tr>
<tr>
<td>1042</td>
<td>Must be first statement on the line</td>
</tr>
<tr>
<td>1043</td>
<td>Can't assign to non-ByVal argument</td>
</tr>
<tr>
<td>1044</td>
<td>Can't use parens when calling a Sub</td>
</tr>
<tr>
<td>1045</td>
<td>Expected literal constant</td>
</tr>
<tr>
<td>1046</td>
<td>Expected 'In'</td>
</tr>
<tr>
<td>32766</td>
<td>True</td>
</tr>
<tr>
<td>32767</td>
<td>False</td>
</tr>
<tr>
<td>32811</td>
<td>Element not found</td>
</tr>
</tbody>
</table>
**WeekdayName Function**

See Also

**Description**

Returns a string indicating the specified day of the week.

**Syntax**

```vbscript
WeekdayName(weekday, abbreviate, firstdayofweek)
```

The `WeekdayName` function syntax has these parts:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>weekday</code></td>
<td>Required. The numeric designation for the day of the week. Numeric value of each day depends on setting of the <code>firstdayofweek</code> setting.</td>
</tr>
<tr>
<td><code>abbreviate</code></td>
<td>Optional. Boolean value that indicates if the weekday name is to be abbreviated. If omitted, the default is <code>False</code>, which means that the weekday name is not abbreviated.</td>
</tr>
<tr>
<td><code>firstdayofweek</code></td>
<td>Optional. Numeric value indicating the first day of the week. See Settings section for values.</td>
</tr>
</tbody>
</table>

**Settings**

The `firstdayofweek` argument can have the following values:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>vbUseSystem</code></td>
<td>0</td>
<td>Use National Language Support (NLS) API setting.</td>
</tr>
<tr>
<td><code>vbSunday</code></td>
<td>1</td>
<td>Sunday (default)</td>
</tr>
<tr>
<td>vbMonday</td>
<td>2</td>
<td>Monday</td>
</tr>
<tr>
<td>------------</td>
<td>---</td>
<td>----------</td>
</tr>
<tr>
<td>vbTuesday</td>
<td>3</td>
<td>Tuesday</td>
</tr>
<tr>
<td>vbWednesday</td>
<td>4</td>
<td>Wednesday</td>
</tr>
<tr>
<td>vbThursday</td>
<td>5</td>
<td>Thursday</td>
</tr>
<tr>
<td>vbFriday</td>
<td>6</td>
<td>Friday</td>
</tr>
<tr>
<td>vbSaturday</td>
<td>7</td>
<td>Saturday</td>
</tr>
</tbody>
</table>

Remarks

The following example uses the **WeekDayName** function to return the specified day:

```vbscript
Dim MyDate
MyDate = WeekDayName(6, True) ' MyDate contains Fri.
```
ExecuteGlobal Statement

See Also

Eval Function
Execute Statement
GetLocale Function

See Also

SetLocale Function
Locale ID (LCID) Chart
Locale

ID (LCID) Chart

See Also

GetLocale Function
SetLocale Function
SetLocale Function

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Locale ID (LCID) Chart
Operator Summary

See Also

Operator Precedence
Assignment Operator

= Operator
Derived Math Functions

See Also

Atn Function
Cos Function
Exp Function
Log Function
Sin Function
Sqr Function
Tan Function
WeekdayName Function

See Also

MonthName Function