



# **Siebel VB Language Reference**

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# 1

## What's New in This Release

### **What's New in Siebel VB Language Reference, Siebel Innovation Pack 2017**

No new features have been added to this guide for this release. This guide has been updated to reflect only product name changes.



# 2

## About Siebel Visual Basic

This chapter describes Oracle's Siebel Visual Basic. It includes the following topics:

- [Overview of Siebel Visual Basic on page 13](#)
- [About Functions and Methods on page 14](#)

### Overview of Siebel Visual Basic

*Siebel VB* (Visual Basic) is a programming language that provides the following capabilities:

- A fully functional procedural programming language
- An application interface that provides bidirectional access to Siebel business objects
- An editing environment that you can use to create and maintain custom Siebel VB code
- A debugger that you can use to help detect errors in your Siebel VB code
- A compiler that you can use to compile your custom Siebel VB code
- A run-time engine that is similar to a Visual Basic interpreter that you can use to process custom Siebel VB code

You can use Siebel VB to create scripts that automate a variety of daily tasks.

Siebel VB does not support the following items:

- Functionality developed through custom programming
- Automatic upgrades of custom code with the Siebel Application Upgrader
- Development of a separate, standalone application with Siebel VB
- Accessing server management functionality. To configure this functionality, you must use the user interface of the server management software or the command line.
- Development or deployment in a UNIX environment.

If you customize the Siebel Sales Enterprise application, then you must use caution. This customization must be done only by a trained technical professional.

Improper application configuration can adversely effect the reliability and performance of your Siebel application. You must thoroughly test any customization you develop before you implement your customization in a production environment.

### Siebel VB and Unicode

Siebel VB supports Unicode except for functions that do the following:

- Perform a file input operation or a file output operation

- Accesses an external DLL that is dependent on character encoding and is not compliant with Unicode.

## Typographic Conventions That This Book Uses

Table 1 describes the typographic conventions that this book uses.

Table 1. Typographic Conventions That This Book Uses

Item That This Book Represents	Convention
Statements and functions.	Initial uppercase letters. For example:  <code>Abs Len(<i>variable</i>)</code>
Arguments for statements or functions.	Letters that are in lowercase and that are italicized. A capital letter that occurs in a position other than the first letter can identify multiple English words. For example:  <ul style="list-style-type: none"> <li>■ <code><i>variable</i></code></li> <li>■ <code><i>rate</i></code></li> <li>■ <code><i>prompt</i></code></li> <li>■ <code><i>stringVar</i></code></li> </ul>
Optional arguments or characters.	Square brackets. For example:  <ul style="list-style-type: none"> <li>■ <code>[<i>caption</i>]</code></li> <li>■ <code>[<i>type</i>]</code></li> <li>■ <code>[\$]</code></li> </ul>
Required choice for an argument from a list of choices.	A list in curly brackets. An OR operator (   ) separates the possible choices. For example:  <code>{Goto label   Resume Next   Goto 0}</code>

For more information, see the following items:

- Creating script that runs on UNIX and that uses a Siebel object manager, see *Siebel Events Management Guide*.
- Creating, modifying, and deleting Siebel VB scripts that you use in Siebel Tools, see *Siebel Object Interfaces Reference*.

## About Functions and Methods

A *Siebel VB function* is an independent section of code that does the following:

- 1 Receives information

- 2 Performs some action on this information
- 3 Returns a value to the item that called it

It begins with the following statement:

```
Function functionname
```

It ends with the following statement:

```
End Function
```

You can use the same format that you use with a variable to name a custom function. You can use any valid variable name as a function name. It is recommended that you use a name that describes the work that the function performs.

You can write code that calls a function repeatedly from various objects or script. It is similar to a subroutine. To call a function, you must know what information the function requires as input and what information it provides as output. This book describes the predefined functions that come with Siebel VB. You can use these functions any time you use the Siebel VB interpreter.

You can use a function anywhere you can use a variable. To use a function, you do the following:

- To declare it, you can use the function keyword.
- To determine the data that Siebel VB must pass to the function, you include the function operator. To include this operator, you can use a pair of parentheses immediately after the function name. For example, `TheApplication.RaiseErrorText()`.

A *Siebel VB method* is a function that is part of an object or class. It can include a predefined procedure that you can use to call a function.

A *Siebel VB statement* is a complete instruction.

For more information, see *Siebel eScript Language Reference*.

## Siebel VB and Other Versions of Visual Basic Programming Languages

This topic compares Siebel VB to other versions of the Visual Basic programming language.

### Differences Between Siebel VB and Earlier Versions of Visual Basic

Siebel VB is similar to a high level language, such as the C programming language or Pascal. This topic describes some of the differences you might notice between older versions of Visual Basic and Siebel VB.

## Line Numbers and Labels

Older versions of Visual Basic require numbers at the beginning of every line. More recent versions do not support or require line numbers. Use of line numbers causes error messages.

You can use a label to reference a line of code. A *label* can be any combination of text and numbers. Typically it is a single word followed by a colon, and placed at the beginning of a line of code. The Go To statement uses these labels.

## Subroutines and Modularity

Because Siebel VB is a modular language, it divides code into subroutines and functions. To perform actions, the subroutines and functions you write use Siebel VB statements and functions.

## How Declaring a Variable Affects Variable Scope

Table 2 describes how you declare a variable affects variable scope.

Table 2. How You Declare a Variable Affects Variable Scope

Scope	Where the Variable Is Declared
Local	Declared in a subroutine or function. Only the subroutine or function that declares the variable can access this local variable.
Module	Declared in the general declarations section. Any subroutine, function, or event that is attached to the object in the script window that displays this variable can access this modular variable.
Global	Declared in one of the following items: <ul style="list-style-type: none"><li>■ Application_Start event</li><li>■ Application.PreInvokeMethod method</li></ul> You can write code that accesses a global variable throughout the Siebel application. For more information, see Siebel Technical Note #217 on My Oracle Support.

## Data Types

Siebel VB is a typed language. It includes multiple data types, such as strings, numbers, variants, and arrays.

A variable that you define as a variant can store any type of data. For example, the same variable can hold integers or strings, depending on the code.

Objects allow you to manipulate complex data that an application supplies, such as Microsoft Windows forms, or COM objects.

For more information, see ["About Data Types" on page 22](#).



## Financial Methods

Siebel VB includes financial methods that you can use to configure Siebel CRM to do a calculation. For example, to calculate a loan payment, an internal rate of return, or a future value according to a cash flow. For more information, see ["Financial Methods" on page 215](#).

## Date and Time Methods

Date and time methods can compare a file date to the current date, set the current date and time, time events, and do scheduling. For more information, see ["Date and Time Methods" on page 179](#).

## Methods to Access Other Applications

Microsoft Windows uses the Common Object Model (COM) standard to allow an application to access the functionality of another application. An object might be the end product of a software application. For example, a document from a word processing application. The Object data type allows Siebel VB to access another software application through these objects, and then modifies them. For more information, see ["COM Methods" on page 228](#).

## Environment Control

Siebel VB can call another software application and send keystrokes to the application. It can also run code and return values in the operating system environment table.

## Differences Between Siebel VB and Visual Basic

Siebel VB, Microsoft Visual Basic, and Visual Basic for Applications (VBA) use functions and statements that are similar to one another, but each of these languages possess some unique capabilities.

## User Interface and Control Objects

Siebel VB does not include any Visual Basic user interface control objects, such as a Button Control. A Visual Basic property such as BorderStyle is not part of Siebel VB. Siebel VB allows you to reference user interface controls in Siebel CRM and set and get their values. you can use Siebel Tools to manage a Siebel CRM user interface. You must not use the Input statement in Visual Basic as a way to get keyboard input.

## Boolean Data Type

Siebel VB does not include a Boolean data type. It considers 0 to be FALSE and any other numeric value to be TRUE. You can write code that uses only a numeric value as a Boolean value. A comparison expression always returns 0 for FALSE and -1 (negative one) for TRUE. You can use the following values in an integer variable to simulate a Boolean data type:

- **To represent TRUE.** A value of 1 or any number that is not zero.
- **To represent FALSE.** A value of 0.

If you must call a field from a script, and if this field is a DTYPE\_BOOL type field, then you must declare it as a string.

# 3

## Using Siebel VB

This chapter describes how to use Siebel VB. It includes the following topics:

- [Guidelines for Using Siebel VB on page 19](#)
- [About Data Types on page 22](#)
- [About Expressions on page 29](#)
- [About Object Handling on page 31](#)
- [Declaring Procedures and Variables on page 33](#)
- [About Formatting Strings on page 39](#)
- [About Error Handling on page 47](#)

For information about the format that Siebel VB uses, see the topic that describes the format of the object interface method in *Siebel Object Interfaces Reference*.

### Guidelines for Using Siebel VB

This topic describes guidelines that you can use when you program with Siebel VB. It includes the following topics:

- ["Pass Values Through Reference" on page 19](#)
- ["Give Each Argument a Name" on page 20](#)
- ["Other Guidelines" on page 22](#)

### Pass Values Through Reference

Where possible, it is recommended that you pass a value through a reference and not through a variable. Passing a value through a variable is less efficient than passing the same value through a reference. You must write code that passes a value through a variable unless it cannot pass the same value through a reference.

#### Passing a Value Through a Reference

Siebel CRM can pass a variable to a subroutine or a function through a reference. Each method determines if it can receive a value from a variable or a reference. A subroutine or function can modify this value.

## Passing a Value Through a Variable

Siebel CRM can pass a value to a function through a variable. After processing is complete, the variable retains the value that it contained before Siebel CRM passed it, even though the subroutine or function might modify the passed value.

If you configure Siebel CRM to pass a variable to a method that modifies the corresponding argument, and if you must retain the value that this variable contains, then you must enclose the variable in parentheses in the Call Subroutine statement. This format instructs Siebel VB to pass a copy of the variable. This technique is known as *passing a value through a variable*. For more information, see ["Call Subroutine Method" on page 98](#).

If Siebel CRM passes a variable to a function, and if an argument for this function expects to receive a value through a reference, then this variable must match the exact type of the argument. This requirement does not apply to an expression or a variant.

If you configure Siebel CRM to call an external DLL, then you can configure the ByVal keyword to pass an argument through a value. You specify this configuration in the Declare Procedure statement or in the Call Subroutine statement. If you specify the ByVal keyword in the declaration, then the ByVal keyword is optional in the call. If you use the ByVal keyword, then it must precede the value. If you do not specify the ByVal keyword in the declaration, and if you specify the data type in the declaration, then you cannot use the ByVal keyword in the call.

For more information, see ["Declare Procedure Method" on page 105](#).

## Give Each Argument a Name

If you use a function that includes an argument, then you can provide a value for this argument. To do this, you list it in the order where it occurs in the format for the function. For example, assume you define the following function:

```
myfunction(id, action, value)
```

In this example, the myfunction function requires the following arguments:

- id
- action
- value

If you call this function, then you specify these arguments in the order that they occur. If a function includes multiple arguments, then it is recommended that you name each argument. This technique helps to make sure that Siebel CRM assigns each value that you specify to the correct argument.

If you give each argument a name, then you are not required to remember the order where the arguments occur. For example, the following format is correct even though the order varies from the order that the format specifies:

```
myfunction action:="get", value:=0, id:=1
```

Consider the following code:

```
sub mysub(aa, bb, optional cc, optional dd)
```

The following calls to this code are equivalent to each other:

```
call mysub(1, 2, , 4)
mysub aa := 1, bb := 2, dd := 4
call mysub(aa := 1, dd:= 4, bb := 2)
mysub 1, 2, dd:= 4
```

## Format That You Can Use to Name an Argument

To name an argument, you use the following format:

```
argname:= argvalue
```

where:

- *argname* is the name of the argument that you specify in the Function statement or the Sub statement. For more information, see ["Create Function Method" on page 102](#) and ["Create Subroutine Method" on page 100](#).
- *argvalue* is the value that Siebel CRM assigns to the argument when your code calls it.

For example:

```
myfunction id:=1, action:="get", value:=0
```

## Naming an Argument With More Complex Formats

With some formats, you must use a comma as a placeholder for each optional argument that you do not specify. If you name the arguments, then you can specify only the arguments that your code must use and their values. For example, consider the following code:

```
myfunction(id, action, value, optional counter)
```

In this situation, you can use one of the following formats:

```
myfunction id:="1", action:="get", value:="0"
myfunction value:="0", counter:="10", action:="get", id:="1"
```

You cannot omit a required argument.

## Where You Can Name an Argument

You can name an argument in the following situations:

- Functions you define with the Function statement
- Subroutines you define with the Sub statement
- Code that you declare with the Declare Procedure statement
- Some predefined functions and statements
- Some externally registered DLL functions and methods

## Other Guidelines

It is recommended that you apply the following guidelines when you use Siebel VB. For information about each of them, see the topic about guidelines for using Siebel VB and Siebel eScript in *Siebel Object Interfaces Reference*:

- Declare your variables
- Use a standard naming convention
- Use a self-reference to identify the current object
- Avoid nested If statements
- Use a four-digit year
- Apply multiple object interface methods to a single object
- Write code that handles run-time errors

## About Data Types

This topic describes the data types that Siebel VB uses. It includes the following topics:

- ["Overview of Data Types" on page 22](#)
- ["Arrays" on page 23](#)
- ["Numeric Data Types That Siebel VB Uses" on page 25](#)
- ["Records" on page 26](#)
- ["Strings" on page 26](#)
- ["Variants" on page 26](#)
- ["Type Characters" on page 27](#)
- ["How Siebel VB Converts Data Types" on page 28](#)
- ["Comments" on page 29](#)

## Overview of Data Types

Siebel VB is a strongly typed language. A variable can contain data only of the declared type. It supports numeric, string, record, and array data that is standard with the Visual Basic programming language. It supports the following data types:

- Array
- Double-precision, floating-point number
- Double-precision integer
- Integer
- Object

- Record
- Single-precision, floating-point number
- String
- Variant

You can do one of the following to declare a variable:

- You can use a type character to implicitly declare a variable the first time your code references it. If you do not use a type character, then Siebel VB uses a default type of Variant.
- You can use the Declare Variable statement to explicitly declare the variable type. For more information, see ["Declare Variable Statement" on page 128](#).

## Arrays

To create an array, you specify one or more subscripts when you declare the array or when the Declare Array method redimensions the array. A subscript specifies the beginning and ending index for each dimension. If you specify only an ending index, then the beginning index depends on the Set Array Lower Boundary method. To reference an array element, you enclose each index value in parentheses after the array name. For example, the following format describes an array that includes three dimensions:

```
arrayName(i,j,k)
```

You can use an array with the following data types:

- Number
- String
- Variant
- Record
- Object

Siebel VB does not support the following items:

- An array of arrays
- Dialog box records
- Dialog box objects

For more information, see the following topics:

- ["Declare Variable Statement" on page 128](#)
- ["Array Methods" on page 160](#)
- ["Declare Array Method" on page 160](#)

For examples that use arrays, see the following topics:

- ["Is Variable Set Method" on page 214](#)
- ["Is Variable Null Method" on page 212](#)

- ["Calculate Net Present Value Method" on page 220](#)
- ["Set Variant Variable to Null Method" on page 137](#)
- ["Set Array Lower Boundary Method" on page 164](#)
- ["Get Variant Type Method" on page 134.](#)

## Dynamic Arrays

If you declare a dynamic array, then you do not specify a subscript range for the array elements. You can use the Declare Array method to set the subscript range. You can write code that sets the number of elements in a dynamic array according to other conditions that your code specifies. For example, you might use an array to store a set of values that the user enters, but you might not know in advance how many values the user will enter. In this situation, you can do one of the following:

- Dimension the array without specifying a subscript range, and then run a Declare Array method each time the user enters a new value.
- Write code that prompts the user to enter the number of values, and then run one Declare Array method to set the size of the array.

If you use the Declare Array method to modify the size of an array, and if you must preserve the contents of this array, then make sure you include the following Preserve argument in the Declare Array method:

```
Redim Preserve ArrayName(n)
```

If you use a Declare Variable statement to declare a dynamic array, then it can include no more than eight dimensions. You must use the Declare Array method to create a dynamic array that includes more than eight dimensions. This method allows you to declare an array that includes up to 60 dimensions. For more information, see ["Declare Variable Statement" on page 128](#) and ["Declare Array Method" on page 160](#).

You cannot use the Declare Array method to modify the number of dimensions of a dynamic array if the array already has dimensions. It can modify only the upper and lower boundaries of the dimensions of the array. For information about methods that can determine the current boundaries of an array, see ["Get Array Lower Boundary Method" on page 163](#) and ["Get Array Upper Boundary Method" on page 164](#).

### Example of a Dynamic Array

The following example code uses a dynamic array named varray to hold the cash flow values that the user enters:

```
Sub main
  Dim aprate as Single
  Dim varray() as Double
  Dim cflowper as Integer
  Dim msgtext as String
  Dim x as Integer
  Dim netpv as Double
  cflowper=2
  Redim varray(cflowper)
```



```

For x= 1 to cflower
varray(x)=500
Next x
aprate=10
If aprate>1 then
  aprate=aprate/100
End If
netpv=NPV(aprate,varray())
msgtext="The net present value is: "
msgtext=msgtext & Format(netpv, "Currency")
TheApplication.raiseErrorText msgtext
End Sub

```

## Numeric Data Types That Siebel VB Uses

Table 3 describes the numeric data types that Siebel VB uses.

Table 3. Numeric Data Types That Siebel VB Uses

Type	Description	Smallest Value	Largest Value
Integer	2 byte integer	Negative 32,768.	Positive 32,767.
Long	4 byte integer	Negative 2,147,483,648.	Positive 2,147,483,647.
Single-Precision	4 byte floating-point number	Negative 3.402823e+38 0.0, 1.401298e-45.	Negative 1.401298e-45, 3.402823466e+38.
Double-Precision	8 byte floating-point number	Negative 1.797693134862315d+308, 0.0, 2.2250738585072014d-308.	Negative 4.94065645841247d-308, 1.797693134862315d+308.
Currency	8 byte number with a fixed decimal point	Negative 922,337,203,685,477.5808.	Positive 922,337,203,685,477.5807.

A numeric value is always signed.

You can write code that expresses an integer constant in the following ways:

- **Decimal.** You can use the decimal representation to express a decimal constant.
- **Octal.** You precede the constant with &O or with &o to express an octal value. For example, &o177.
- **Hexadecimal.** You precede the constant with &H or with &h to express a hexadecimal value. For example, &H8001.

For more information, see ["Boolean Data Type" on page 17](#).

## Records

A *record* is a data structure that includes one or more elements. Each of these elements includes a value. You must define a type first, and then declare the variable using that type. You must not include a type character as the suffix in the variable name. A record element uses dot notation. For example:

*record.element*

where:

- *record* is the record name.
- *element* is a member of this record. A record can contain elements that are themselves records.

## Strings

A Siebel VB string can be one of the following:

- **Fixed.** You specify the length when you define the string. You cannot write code that modifies the length after it defines the string. A fixed string cannot be of 0 length.
- **Dynamic.** You do not specify a length. A dynamic string can vary in length from 0 to 32,767 characters.

There are no restrictions on the characters that a string can include. For example, a string can include a character whose ANSI value is 0.

You can cut and paste a character or you can use the Chr function to include a character from a character set. You can use characters only from the current character set. For more information, see [“Get ANSI String Method” on page 145](#).

If you configure Siebel CRM to exchange data with another application, then you must consider how this application handles terminating characters. Some applications create and expect only a carriage return. To stop output text, Siebel VB uses a carriage return and a line feed (CRLF). It expects CRLF characters in input text unless this input is specifically configured for some input functions.

## Variants

To define a variable that contains any type of data, you can write code that uses the variant data type. To identify the type of data that the variable currently contains, Siebel VB stores a tag with the variant data. To examine this tag, you can use the VarType function.

Table 4 describes the types of values that a variant can contain.

Table 4. Types of Values That a Variant Can Contain

Type	Size of Data	Smallest Value	Largest Value
0 Empty	0	Not applicable.	Not applicable.
1 Null	0	Not applicable.	Not applicable.
2 Integer	2 bytes, short	Negative 32768.	Positive 32767.
3 Long	4 bytes, long	Negative 2.147E9.	Positive 2.147E9.
4 Single	4 bytes, float	Negative 3.402E38.	Negative 1.401E-45.
		Positive 1.401E-45.	Positive 3.402E38.
5 Double	8 bytes, double	Negative 1.797E308.	Negative 4.94E-324.
		Positive 4.94E-324.	Positive 1.797E308.
6 Currency	8 bytes, fixed	Negative 9.223E14.	Positive 9.223E14.
7 Date	8 bytes, double	Jan 1, 100 to Dec 31, 9999.	Not applicable.
8 String	up to 2 gigabytes	Length is limited by the amount of random access memory, up to 2 gigabytes.	Not applicable.
9 Object	Not applicable.	Not applicable.	Not applicable.

If you define a variant that contains no data, then Siebel VB defaults the type to Empty. It does the following:

- Converts an empty variant to zero when it uses this variant in a numeric expression
- Converts an empty variant to an empty string when it uses this variant in a string expression

You can use the `IsEmpty` statement to determine if a variant is empty. For more information, see ["Is Variable Set Method" on page 214](#).

A null variant does not include data. It only represents a result that is not valid or that is ambiguous. You can use the `IsNull` statement to determine if a variant contains a null value. Null indicates that a variant is not set. For more information, see ["Is Variable Null Method" on page 212](#).

## Type Characters

Siebel VB can use a special character as the suffix of the name of a function, variable, or constant. This character identifies the data type of the variable or function. It is a declaration.

Table 5 lists the characters you can use as a suffix.

Table 5. Characters You Can Use as a Suffix

Data Type	Suffix
Dynamic String	\$
Integer	%
Long Integer	&
Single-precision floating-point	!
Double-precision floating-point	#
Currency, exact fixed point	@

## How Siebel VB Converts Data Types

This topic describes the conversions that occur between the data types that Siebel VB supports. It does not support any other conversions. It does not automatically do conversions between numeric and string data:

- You can use the Val statement to convert a string to numeric data. For more information, see ["Get First Number From String Method" on page 146](#).
- You can use the Str statement to convert numeric data to a string. For more information, see ["Convert Number to String Method" on page 141](#).

### Numeric Conversion

If Siebel VB converts data from a larger number type to a smaller number type, then a run-time numeric overflow might occur. This situation indicates that the value of the larger type is too large for the target data type. Imprecision is not a run-time error. For example, when converting from double to single, or from float to a larger or a smaller type. Converting a long number to an integer is an example of converting a larger type to a smaller type.

### String Conversion

If Siebel VB converts data from a fixed string to a dynamic string, then it creates a dynamic string that includes the same length and contents as the fixed string. If it converts a dynamic string to a fixed string, then it does the following work:

- If the dynamic string is shorter than the fixed string, then it extends the fixed string with spaces.
- If the dynamic string is longer than the fixed string, then it truncates the fixed string.

A string conversion does not cause run-time errors.

## Variant Conversion

Siebel VB can convert data between any data type and a variant. It can convert a variant string to a number. If the variant string does not contain a valid representation of the number, then a type mismatch error occurs.

## Comments

An apostrophe precedes a comment. It can occur on a separate line in the code or immediately after a statement or function on the same line. For example:

```
' This comment is on its own line

Dim i as Integer ' This comment is on the code line
```

You can also use a Rem Statement to make a comment. For example:

```
Rem This is a comment line.
```

Siebel VB does not include a block comment feature.

## About Expressions

An *expression* is a collection of two or more terms that perform a mathematical or logical operation. The terms are typically variables or functions that you use with an operator to evaluate to a string or numeric result. You can use an expression to perform a calculation, manipulate a variable, or concatenate a string.

Siebel VB evaluates an expression according to precedence order. You can use parentheses to override the default precedence order. The following operators are listed in order of highest precedence to lowest precedence:

- 1 "Numeric Operators" on page 29
- 2 "String Operators" on page 30
- 3 "Comparison Operators" on page 30
- 4 "Logical Operators" on page 31

## Numeric Operators

Table 6 describes numeric operators.

Table 6. Numeric Operators

Operator	Description
^ (caret)	Exponentiation.
- (minus) or + (plus)	Unary minus and plus.

Table 6. Numeric Operators

Operator	Description
* (asterisk) or / (forward slash)	Numeric multiplication or division. For division, the result is a Double.
\ (backward slash)	Integer division. The operands can be Integer or Long.
Mod	Modulus or Remainder. The operands can be Integer or Long.
- (minus) or + (plus)	Numeric addition and subtraction. You can also use the + (plus) operator for string concatenation.

## String Operators

Table 7 describes string operators.

Table 7. String Operators

Operator	Description
& (ampersand)	String concatenation
+ (plus)	String concatenation

## Comparison Operators

Table 8 describes comparison operators. For a number, Siebel VB increases the operands to the least common type:

- Integer is preferable to Long.
- Long is preferable to Single.
- Single is preferable to Double.

For a string, the comparison is case-sensitive and is according to the collating sequence that the language specifies in the Microsoft Windows Control Panel. The result is 0 for FALSE and negative 1 for TRUE.

Table 8. Comparison Operators

Operator	Description
>	Greater than.
<	Less than.
=	Equal to.
<=	Less than or equal to.

Table 8. Comparison Operators

Operator	Description
>=	Greater than or equal to.
<>	Not equal to.

## Logical Operators

Table 9 describes logical operators. Siebel VB performs a bitwise operation for each operator.

Table 9. Logical Operators

Operator	Type	Description
NOT	Unary Not	Operand can be Integer or Long.
AND	And	Operands can be Integer or Long.
OR	Inclusive Or	Operands can be Integer or Long.
XOR	Exclusive Or	Operands can be Integer or Long.
EQV	Equivalence	Operands can be Integer or Long. (A EQV B) is the same as (NOT (A XOR B)).
IMP	Implication	Operands can be Integer or Long. (A IMP B) is the same as ((NOT A) OR B).

## About Object Handling

An *object* is a reusable block of code. You can write code that instantiates an object or that does something. Each software application includes a set of properties and methods that modify the characteristics of an object.

A *property* affects how an object behaves. For example:

- Width is a property of a range of cells in a spreadsheet.
- Color is a property of a graph.
- Margin is a property of a word processing document.

A *method* causes an application to perform an action on an object. For example:

- Calculate for a spreadsheet
- Snap to Grid for a graph
- Auto-Save for a document

You can write Siebel VB that accesses a Siebel object and that modifies the properties and methods of this object. To access an object that is part of the Siebel application, you can run Siebel VB code that is external to the Siebel application.

To use a non-Siebel object in Siebel VB code, you must first assign it to an object variable. Assigning it instantiates it. To manipulate the object, you then reference the object name with or without properties and methods.

## Example of Declaring an Object As a Siebel CRM Object Type

Figure 1 includes an example that configures Siebel VB to access a Siebel object. You can declare an object as a Siebel CRM object type.

```
Sub BusComp_NewRecord

1 Dim oBC As BusComp
  set oBC = me.GetPickListBusComp('Sales Stage')

2 oBC.ClearToQuery
  oBC.ActivateField 'Sales Stage Order'
  oBC.SetSortSpec 'Sales Stage Order'
  oBC.ExecuteQuery ForwardOnly

3 set oBC = nothing

End Sub
```

Figure 1. Example of Declaring an Object as a Siebel CRM Object Type

### Explanation of Callouts

To declare an object as a Siebel CRM object type, you do the following work:

- 1 You create an object variable to access the code. This example uses `as BusComp` to declare the object. It does not use `as object`. This example instantiates the business component (BusComp) Siebel object type. You could declare it as an object, but if you use the methods associated with the object type, then you must declare it as the appropriate object type.
- 2 You can use methods and properties to manipulate the objects.
- 3 Set `oBC` to `nothing`. It is recommended that you always set an object to `nothing` when your code instantiates it.

You can use similar code to access other types of objects that are compliant with COM. You can use the software application that creates the object to modify properties and methods of the objects. For an example, see ["Date and Time Methods" on page 179](#).

## Creating an Object Variable to Access an Object

The Declare Variable statement creates an object variable named `oBC` and assigns a picklist business component to this variable. The Assign COM Object statement uses a get method to assign the business component to the `oBC` variable. Note the following:

- If you instantiate an application, then you can use the `GetObject` method or the `CreateObject` method.



- If the application is already open on the Microsoft Windows desktop, then you use `GetObject`.
- If the application is not open, then you can use `CreateObject`.

For more information, see the following topics:

- ["Declare Variable Statement" on page 128](#)
- ["Date and Time Methods" on page 179](#)
- ["Get COM Object Method" on page 233](#)

## Using Methods and Properties to Manipulate an Object

You can use the following format to access an object, property, or method:

```
appvariable.object.property
appvariable.object.method
```

For example, the `GetPickListBusComp` method of the `BusComp` object of the Siebel application is assigned to the `oBC` object variable. It returns the following value:

```
me.GetPickListBusComp("Sales Stage")
```

# Declaring Procedures and Variables

This topic describes information about declaring procedures and variables.

## Declaring a Procedure

This topic includes information about how to use the `Declare Procedure` statement to declare a procedure in a module or in a dynamic link library (DLL). For more information about this statement and the format and arguments that you can use with it, see ["Declare Procedure Method" on page 105](#).

## Specifying the Data Type

You do one of the following to specify the data type for the value that a method returns:

- End the method name with a type character.
- Use the following clause:

```
As funcType
```

Note the following:

- If you do not specify a type, then the method that the `Declare Procedure` statement declares defaults to the data type `variant`.
- To use a record argument, you use an `As` clause and a type that is already defined with the `Type` statement.

- To use an array argument, you use empty parentheses after the argument. You do not specify an array dimension in the Declare Procedure statement.

### Sequence Determines How You Must Declare Code

Siebel Tools compiles custom methods in alphabetical order. If you reference code in the current code before you define it, then you must use a declaration. For example, assume you create the following subroutines in the general declarations section:

```
Sub A
' Calling B
B
End Sub

Sub B
theApplication.RaiseErrorText "Sub B called"
End Sub
```

In this situation, compilation fails with the following message:

```
Unknown function: B
```

If you add the following statement before Sub A, then the code compiles and runs properly:

```
Declare Sub B
```

### Calling External DLL Code

You can use the Pascal calling convention to write code that calls external DLL code. Siebel VB pushes the arguments on the stack from left to right. It uses the Far reference to pass these arguments, by default. You can write code that uses the following keywords when it calls external DLL code:

- **ByVal.** Passes a value through a variable. Note the following:
  - You must specify ByVal before you specify the argument that it modifies.
  - If you apply ByVal to a numeric data type, then Siebel VB passes the argument through a variable, not through a reference.
  - If you apply ByVal to a string data type, then Siebel VB passes the byFar pointer to the string data. It uses the byFar pointer to pass a string to a string descriptor, by default.  
For more information, see ["Pass Values Through Reference" on page 19](#).
- **Any.** Passes a value of any datatype. If you use Any for an argument, then Siebel VB does not examine the type of this argument. It does examine the type of any other argument that you do not specify as type Any. It uses the Far reference to pass the argument unless you specify the ByVal keyword. If you specify the ByVal keyword, then it does one of the following:
  - **Numeric data.** Places the value on the stack.
  - **String data.** Sets the pointer to the string.

The external DLL code must determine the type and size of the value.

If Siebel VB uses ByVal to pass a null string, then the external code receives a nonNULL character of 0. To send a NULL pointer, you must declare the argument as ByVal As Any, and then call the code with an argument of 0.

## Declaring Variables

This topic includes information about using the Declare Variable statement to declare a variable. For more information about this statement and the format and arguments that you can use with it, see ["Declare Variable Statement" on page 128](#).

It is recommended that you place procedure-level Declare Variable statements at the beginning of the procedure.

For information about explicitly declaring a variable, see ["Force Explicit Declaration Statement" on page 133](#).

## Determining Variable Scope

You can write code that shares a variable across modules. The following locations where you declare a variable determines the scope of the variable:

- **Declare in a procedure.** The variable is local to this procedure.
- **Declare outside a procedure.** The variable is local to the module.

If you declare a variable that has the same name as a module variable, then you cannot access the module variable. For more information, see ["Declare Global Variable Statement" on page 129](#).

## Specifying the Type When You Declare a Variable

You can specify one of the following types when you declare a variable:

- Arrays
- Numbers
- Records
- Strings
- Variants
- Objects

If you do not specify a data type, then Siebel VB assigns the variant data type to this variable.

If you do not include the As clause, then you can specify the type argument. To specify this argument, you use a type character as a suffix of the variableName argument. You can use both type specification techniques in a single Declare Variable statement. You cannot use them simultaneously on the same variable.

You can write code that omits the type character when your code references the variable. The type suffix is not part of the variable name.

For more information, see [“About Data Types” on page 22](#).

## Declaring an Array Variable

The following data types are available for an array:

- Numbers
- Strings
- Variants
- Records

You cannot write code that uses the Declare Variable statement to declare an array of arrays or an array of objects.

You include a subscript list as part of the variableName argument to declare an array variable. You can use one of the following formats:

```
Dim variable([[startSubscript To] endSubscript, ...]) As typeName
Dim variable_with_suffix([[startSubscript To] endSubscript, ... ])
```

[Table 10](#) describes the startSubscript and endSubscript arguments.

Table 10. Start Subscript and End Subscript Arguments

Argument	Description
startSubscript	The index number of the first array element, followed by the following keyword:  To
endSubscript	The index number of the last element of the array.

### Specifying Arguments When Declaring an Array

The startSubscript argument is optional. If you do not specify it, then Siebel VB uses zero as the default value. For example, the following statement creates an array named counter that includes elements 0 through 25, for a total of 26 elements. You can use the Set Array Lower Boundary statement to modify the default value:

```
Dim counter (25) as Integer
```

The values in the startSubscript argument and the endSubscript argument are valid subscripts for the array.

### Size Limits of an Array

You can specify no more than 60 arrays in a parent array. The maximum total number of elements cannot exceed 65,536. For example, the following code is valid because 60 multiplied by 1092 is 65,520, which is less than 65,536:

```
Dim count(1 To 60, 1 To 1092)
```

The following code is not valid because 60 multiplied by 1093 is 65,580, which is more than 65,536:

```
Dim count(1 To 60, 1 To 1093)
```

Each subscript declares one array that resides in the parent array. If you do not specify the `subscriptRange` argument, then Siebel VB declares the array as a dynamic array. In this situation, you must use the `Declare Array` method to specify the dimensions of the array before your code can use it.

## Declaring a Number Variable

Can use the `As` clause and one of the following numeric types to declare a numeric variable:

- Currency
- Integer
- Long
- Single
- Double

You can also include a type character as a suffix to the variable name to declare a numeric variable. Siebel VB sets a numeric variable to 0.

## Declaring a Record Variable

You can use the `As` clause and specify a value in the `typeName` argument to declare a record variable. To define this type, you must use the `Type` statement before you can specify it in the `typeName` argument. You use the following format:

```
Dim variableName As typeName
```

A record includes a collection of data elements that are fields. Each field can be a numeric, string, variant, or previously defined record type. For more information on accessing fields in a record, see ["Create Function Method" on page 102](#).

## Declaring a String Variable

Siebel VB supports the following types of strings:

- **Fixed-length.** Declared with a specific length between 1 and 32767. You cannot write code that modifies a fixed-length variable after you declare it. When you create a fixed-length string, Siebel VB fills it with zeros. To declare a fixed-length string, you use the following format:

```
Dim variableName As String * length
```

- **Dynamic.** Does not include a declared length. It can vary in length from 0 to 32,767. The initial length for a dynamic string is 0. You can use one of the following formats to declare a dynamic string:

```
Dim variableName$  
Dim variableName As String
```

## Declaring a Variant Variable

You declare a variable as a variant in the following situations:

- If the type of the variable is not known.
- If Siebel CRM might modify the variable type when the code runs. For example, a variant is useful for holding input from a user when valid input can include text or numbers.

You use one of the following formats to declare a variant variable:

```
Dim variableName  
Dim variableName As Variant
```

Siebel VB initializes a variant variable to the Empty variant type.

For more information, see ["Variants" on page 26](#).

## Declaring an Object Variable

To declare an object variable, you use the As clause and specify a class in the typeName argument. An object variable can reference an object. It can use dot notation to access members and methods of this object. For example:

```
Dim COMObject As Object  
Set COMObject = CreateObject("spoly.cpoly")  
COMObject.reset
```

You can declare an object as New for some classes. For example:

```
Dim variableName As New className  
variableName.methodName
```

A Set statement is not required in this situation. Siebel VB allocates a new object when it uses this variable.

You cannot use the New operator with the Basic Object class.

## Caution About Declaring Multiple Variables on One Line

**CAUTION:** You can declare multiple variables on one line. However, if you do not include the type for each variable, then Siebel VB applies the type of the last variable to all the variables that you declare on this line.

For example, the following code declares all of the following variables as strings:

```
Dim Acct, CustName, Addr As String
```

## Shared Keyword Allows Backward Compatibility

Siebel VB includes the shared keyword to support backward compatibility with older versions of Visual Basic. You cannot use it in a Declare Variable statement in a procedure. If you use the Shared keyword in a Declare Variable statement in a procedure, then it has no effect.

# About Formatting Strings

This topic includes information about how to use the Set String Format method to format an output string. It includes the following topics:

- ["Numeric Formats" on page 39](#)
- ["Date and Time Formats" on page 43](#)
- ["Other Formatting Options" on page 46](#)

For more information, see ["Set String Format Method" on page 157](#).

## Numeric Formats

This topic describes numeric formats that you can use with the Set String Format method.

### Predefined Numeric Formats

[Table 11](#) describes the predefined numeric formats that you can use.

Table 11. Predefined Numeric Formats

Format	Description
General Number	Displays the number without a thousand separator.
Fixed	Displays the number with at least one digit to the left and at least two digits to the right of the decimal separator.
Standard	Displays the number with a thousand separator and two digits to the right of decimal separator.
Scientific	Displays the number using standard scientific notation.
Currency	Displays the number using a currency symbol as defined in the International section of the Control Panel. Uses a thousand separator and displays two digits to the right of decimal separator. Encloses negative value in parentheses.
Percent	Multiplies the number by 100 and displays it with a percentage symbol (%) appended to the right. Displays two digits to the right of the decimal separator.
True or False	Displays FALSE for 0, or TRUE for any other number.
Yes or No	Displays No for 0, or Yes for any other number.
On or Off	Displays Off for 0, or On for any other number.

## Custom Numeric Formats

You can use one or more digit characters to create a simple custom numeric format. You can use the following digit characters:

- **0 (zero)**. Displays a corresponding digit in the output.
- **(#) number sign**. If the digit is significant, then it displays it in the output. A *significant digit* is a digit that resides in the middle of the number or is not zero.

Table 12 includes examples of using zero and the number (#) sign.

Table 12. Examples of Using Zero and the Number (#) Sign

Number	Format	Result
1234.56	#	1235
1234.56	#.##	1234.56
1234.56	#. #	1234.6
1234.56	#####.##	1234.56
1234.56	00000.000	01234.560
0.12345	#.##	.12
0.12345	0.##	0.12

You can use a decimal separator as an option.

A comma instructs Siebel VB to place a comma between every three digits that occur to the left of the decimal separator.

Table 13 includes examples of using a comma.

Table 13. Examples of Using a Comma

Number	Format	Result
1234567.8901	#,#.##	1,234,567.89
1234567.8901	#,#.#####	1,234,567.8901

Siebel VB uses the current international settings for your computer to determine the character to display for a comma or a period. For example, some locales use a period as the decimal separator. Other locales use a comma.

## Scaling Numbers

You can do one of the following to scale a number:



- Insert one or more commas before the decimal separator. Each comma that precedes the decimal separator divides the number by 1000. If you do not specify a decimal separator, then this configuration applies to all digits. Siebel CRM does not include a comma in the output string.
- Include a percentage symbol (%) in the format argument. A percentage symbol multiplies the number by 100. Siebel CRM includes the percentage symbol in the output string in the same position where it occurs in the format argument.

Table 14 includes examples of using a comma or a percentage symbol to scale numbers.

Table 14. Examples of Using a Comma or Percentage Symbol to Scale Numbers

Number	Format	Result
1234567.8901	#,##	1234.57
1234567.8901	#,.,####	1.2346
1234567.8901	#,#,##	1,234.57
0.1234	#0.00%	12.34%

## Inserting Characters In Number Formats

To insert a character in a number in the output string, you enclose the character in double quotes in the format argument. You can also insert a set of characters. Siebel VB inserts the following characters in the output string in a location that matches the position in the format argument:

- + \$ ( space

You can precede the character with a backslash (\) to insert a single character.

Table 15 includes examples of using double quotes and backslashes to insert characters.

Table 15. Examples of Using Double Quotes and Backslashes to Insert Characters

Number	Format	Result
1234567.89	\$#,0.00	\$1,234,567.89
1234567.89	"TOTAL:" \$#,#.00	TOTAL: \$1,234,567.89
1234	\ = \>#,#\<\ =	= >1,234< =

You can use the Get ANSI String method to insert a quotation mark (") in a format argument. The character code for a quotation mark is 34. For more information, see ["Get ANSI String Method" on page 145](#).

## Scientific Notation Formats

You can include one of the following exponent strings in the format argument to format a number in scientific notation:

- E-
- E +
- e-
- e +

Siebel VB displays this notation in the following ways:

- **An uppercase e.** An uppercase e displays in the output.
- **A lowercase e.** A lowercase e displays in the output.
- **A minus sign that follows an uppercase e.** A minus sign precedes any negative exponent that displays in the output.
- **A plus sign.** A sign always precedes the exponent in the output.

You precede the exponent string with one or more digit characters. The number of digit characters that following the exponent string determines the number of exponent digits that occur in the output.

Table 16 includes examples of using exponential notation.

Table 16. Examples of Using Exponential Notation

Number	Format	Result
1234567.89	###.##E-00	123.46E04
1234567.89	###.##e + #	123.46e + 4
0.12345	0.00E-00	1.23E-01

## Using Sections In a Numeric Format

A numeric format can include up to four sections. A semicolon (;) separates each section. The format varies depending on the number of sections you specify:

- **One section.** This section applies to every value.
- **Two sections:**
  - The first section applies to positive values and zeros.
  - The second section applies to negative values.
- **Three sections:**
  - The first section applies to positive values.
  - The second section applies to negative values.
  - The third section applies to zeros.

If you include semicolons with nothing between them, then Siebel VB uses the format of the first section to print the undefined section.

- **Four sections.** Same as three sections, except the fourth section applies to Null values. If you do not include the fourth section, and if the input expression results in a NULL value, then Siebel VB returns an empty string.

Table 17 includes examples of using sections.

Table 17. Examples of Using Sections

Number	Format	Result
1234567.89	#,0.00;(#,0.00);"zero";"NA"	1,234,567.89
-1234567.89	#,0.00;(#,0.00);"zero";"NA"	(1,234,567.89)
0.0	#,0.00;(#,0.00);"zero";"NA#"	Zero
0.0	#,0.00;(#,0.00);;"NA"	0.00
Null	#,0.00;(#,0.00);"zero";"NA"	NA
Null	"The value is: "	0.00

## Date and Time Formats

This topic describes date and time formats that you can use with the Set String Format method. For more information, see ["Set String Format Method" on page 157](#).

### Predefined Date and Time Formats

Table 18 describes predefined date and time formats that you can use.

Table 18. Predefined Date and Time Formats

Format	Description
General Date	Note the following: <ul style="list-style-type: none"> <li>■ If the number includes an integer part and a fractional part, then it displays date and time information. For example, 11/8/2011 1:23:45 PM.</li> <li>■ If the number includes only an integer part, then it displays this integer as a date.</li> <li>■ If the number includes only a fractional part, then it displays this fractional part as time.</li> </ul>
Long Date	Displays a long date. The International section of the Control Panel defines a long date.
Medium Date	Displays the date using the month abbreviation without the day of the week. For example, 08-Nov-2011.

Table 18. Predefined Date and Time Formats

Format	Description
Short Date	Displays a short date. The International section of the Control Panel defines a short date.
Long Time	Displays a long time. The International section of the Control Panel defines a long time. It includes hours, minutes, and seconds.
Medium Time	Does not display seconds. It displays hours in a 12 hour format and uses the AM and PM designator.
Short Time	Does not display seconds. It uses a 24 hour format and does not use the AM and PM designator.

### Custom Date Formats

You can use a series of tokens in the format argument to define a custom format for a date. Siebel VB replaces each token in the output string with an appropriate corresponding value.

Table 19 describes the tokens that you can use.

Table 19. Tokens You Can Use

Token	Output
c	The equivalent of the format <i>dddd tttt</i> .
dddd	The current date, including the day, month, and year according to the current Short Date setting of the computer. The following format is the default Short Date setting for the United States:  <i>m/d/yy</i>
dddddd	The current date, including the day, month, and year according to the current Long Date setting of the computer. The following format is the default Long Date setting for the United States:  <i>mmmm dd, yyyy</i>
tttt	The current time, including the hour, minute, and second using the current time settings of the computer. The following format is the default time setting for the United States:  <i>h:mm:ss AM/PM</i>

## Specifying Individual Parts of a Custom Date Format

Table 20 describes the tokens that you can use to specify individual parts of a custom date format.

Table 20. Tokens You Can Use to Specify Individual Parts of a Custom Date Format

Token	Output
d	The day of the month as a one or two digit number in the range of 1 through 31.
dd	The day of the month as a two digit number in the range of 1 through 31.
ddd	The day of the week as a three letter abbreviation in the range of Sun through Sat.
dddd	The day of the week without abbreviation in the range of Sunday through Saturday.
w	The day of the week as a number, where Sunday is 1 and Saturday is 7.
ww	The week of the year as a number in the range of 1 through 53, where the first week of January is always week 1.
m	The month of the year or the minute of the hour as a one or two digit number: <ul style="list-style-type: none"> <li>■ If the preceding token is an hour, then the minute is the output.</li> <li>■ If the preceding token is not an hour, then the month is output.</li> </ul>
mm	The month or the year or the minute of the hour as a two digit number: <ul style="list-style-type: none"> <li>■ If the preceding token is an hour, then the minute is the output.</li> <li>■ If the preceding token is not an hour, then the month is output.</li> </ul>
mmm	The month of the year as a three letter abbreviation in the range of Jan through Dec.
mmmm	The month of the year without abbreviation in the range of January through December.
q	The quarter of the year as a number in the range of 1 through 4.
y	The day of the year as a number in the range of 1 through 366.
yy	The year as a two digit number in the range of 00 through 99.
yyyy	The year as a three digit or a four digit number in the range of 100 through 9999.
h	The hour as a one digit or a two digit number in the range of 0 through 23.
hh	The hour as a two digit number in the range of 00 through 23.
n	The minute as a one digit or a two digit number in the range of 0 through 59.
nn	The minute as a two digit number in the range of 00 through 59.
s	The second as a one digit or a two digit number in the range of 0 through 59.
ss	The second as a two digit number in the range of 00 through 59.

## Using a 12 Hour Format

Table 21 describes the tokens that you can use that use a 12 hour format. Siebel VB uses a 24 hour format, by default.

Table 21. Tokens That Use a 12 Hour Format

Token	Output
AM/PM	This token displays the following formats: <ul style="list-style-type: none"> <li>■ An uppercase AM with any hour that occurs before noon.</li> <li>■ An uppercase PM with any hour that occurs between noon and 11:59 PM.</li> </ul>
am/pm	This token displays the following formats: <ul style="list-style-type: none"> <li>■ A lowercase am with any hour that occurs before noon.</li> <li>■ A lowercase pm with any hour that occurs between noon and 11:59 PM.</li> </ul>
A/P	This token displays the following formats: <ul style="list-style-type: none"> <li>■ An uppercase A with any hour that occurs before noon.</li> <li>■ An uppercase P with any hour that occurs between noon and 11:59 PM.</li> </ul>
a/p	This token displays the following formats: <ul style="list-style-type: none"> <li>■ A lowercase a with any hour that occurs before noon.</li> <li>■ A lowercase p with any hour that occurs between noon and 11:59 PM.</li> </ul>
AMPM	This token displays the following formats: <ul style="list-style-type: none"> <li>■ The contents of the 1159 string (s1159) in the WIN.INI file with any hour that occurs before noon.</li> <li>■ The contents of the 2359 string (s2359) with any hour that occurs between noon and 11:59 PM. Note that ampm is equivalent to AMPM.</li> </ul>

## Other Formatting Options

This topic describes other formatting options that you can use with the Set String Format method.

### Changing Formatting Sequence

Siebel VB formats characters from left to right, by default. To format characters from right to left, you can include an exclamation point (!) in the format argument.

### Changing Case

Siebel VB does not modify the case of characters that it formats, by default. To instruct Siebel VB to modify the case of a character, you can use the following characters:

- < (**Less than**). Converts output characters to lowercase.
- > (**Greater than**). Converts output characters to uppercase.

## Handling Spaces That Occur in the Input String

Table 22 describes characters that you can use to handle spaces that occur in the input string.

Table 22. Characters You Can Use to Handle Spaces That Occur in the Input String

Character	Description
@	<p>Siebel VB displays a character or a space according to the following logic:</p> <ul style="list-style-type: none"> <li>■ If a character resides in the string in the position where the @ occurs in the format string, then it displays this character in this position</li> <li>■ If no character resides in the string in the position where the @ occurs in the format string, then it displays a space in this position</li> </ul>
&	<p>Siebel VB displays a character or nothing according to the following logic:</p> <ul style="list-style-type: none"> <li>■ If a character resides in the string in the position where the &amp; occurs in the format string, then it displays this character in this position</li> <li>■ If no character resides in the string in the position where the &amp; occurs in the format string, then it displays nothing</li> </ul>

## About Error Handling

This topic describes error handling. It includes the following topics:

- ["Overview of Error Handling" on page 47](#)
- ["Handling Errors That Siebel VB Returns" on page 48](#)
- ["Handling Custom Errors" on page 49](#)
- ["Handling Errors That a Siebel VB Method Returns" on page 51](#)
- ["Error Code and Error Text for Siebel VB Errors" on page 52](#)

## Overview of Error Handling

Siebel VB includes the following error handling statements and functions:

- Err
- Error
- On Error

Siebel VB returns a code for many of the run-time errors that you might encounter. For more information, see ["Error Code and Error Text for Siebel VB Errors" on page 52](#).

You can write code that uses the On Error statement in the following ways:

- Add code that handles the error immediately before a line of code where an error might occur. For example, after a File Open statement.
- Label a separate section of the code only for error handling and instruct Siebel VB to proceed to this label if an error occurs.

## Handling Errors That Siebel VB Returns

This topic describe how to write code that handles the errors that Siebel VB returns.

### Using the Body of the Code to Handle Siebel VB Errors

To handle errors in the body of code, you place the code that handles the error immediately before the line of code that could cause an error.

Figure 2 includes an example that handles errors in the body of the code.

```
Sub Main
  Dim UserDrive As String, UserDir As String
  Dim msgtext As string
  inl:
    UserDrive = "C:"
    On Error Resume Next ③
    Err = 0
    ChDrive UserDrive
    If Err = 68 Then ②
      TheApplication.RaiseErrorText "Invalid drive.
      Try again."
      Goto inl
    End If
```

Figure 2. Example That Handles Errors In the Body of the Code

#### Explanation of Callouts

The example that handles errors in the body of the code includes the following items:

- 1 The On Error statement identifies the line of code to run if an error occurs.
- 2 The If statement handles the error. It uses the Err statement to identify the error that Siebel VB returns.
- 3 The Resume Next argument instructs Siebel VB to proceed to the next line of code after it handles the error.



## Using an Error Handler to Handle Siebel VB Errors

Figure 3 includes an example that uses an error handler to handle errors.

```

1 On Error Goto Errortrap1
in2:
  UserDir = "test"
  ChDir UserDrive & "\" & UserDir
2 Exit Sub

Errortrap1:
  Select Case Err
    Case 75
      msgtext = "Path is invalid."
    Case 76
      msgtext = "Path not found."
    Case Else
      msgtext = "Error " & Err & ":" & Error$
  End Select
  TheApplication.RaiseErrorText msgtext & " Try again."
  Resume in2
End Sub

```

Figure 3. Example That Handles Errors With an Error Handler

### Explanation of Callouts

The example that uses an error handler to handle errors includes the following items:

- 1 The On Error statement identifies the line of code that Siebel CRM runs if an error occurs. The code segment is part of the main code and it uses the Err statement to determine the error code that Siebel VB returns.
- 2 You precede the code with an Exit statement to make sure that it does not accidentally proceed to the error handler.

## Handling Custom Errors

You can create a custom set of error codes to handle errors that are specific to your code. For example, you can create your own set of error codes if your Siebel VB code creates rules for file input but the user does not follow these rules. You can configure Siebel VB to create an error and reply appropriately using the same statements and functions that you use for error codes that Siebel VB returns.

## Using the Body of the Code to Handle Custom Errors

Figure 4 includes an example that uses the body of the code to handle a custom error.

```

Sub Main
  ❶ Dim custname As String
  On Error Resume Next
  in1:
    Err = 0
    custname = ""
    ❷ If custname = "" Then
      Error 30000
      Select Case Err
        Case 30000
          TheApplication.RaiseErrorText "You must enter a
            customer name"
          Goto in1
        Case Else
          TheApplication.RaiseErrorText "Undetermined error.
            Try again"
      End Select
    End If
    TheApplication.RaiseErrorText " The Name is " &
      custname & "."
End Sub

```

Figure 4. Example That Handles Custom Errors In the Body of the Code

### Explanation of Callouts

The example that uses the body of the code to handle a custom error includes the following items:

- 1 Place the code that handles the error immediately before the line of code that could cause an error.
- 2 You use the Error statement to set the custom error to a value of 30000.

## Using a Label to Handle Custom Errors

Figure 5 includes an example that uses a label to handle a custom error.

```

Sub Main
  1 Dim custname As String
    On Error Goto Errortrap1
  in1:
    Err = 0
    custname = ""
    If custname = "" Then
      Error 30000
    End If
    TheApplication.RaiseErrorText " The Name is " &
    custname & "."
    Exit Sub
  2 Errortrap1:
    Select Case Err
      Case 30000
        TheApplication.RaiseErrorText "You must enter a
        customer name"
      Case Else
        TheApplication.RaiseErrorText "Undetermined
        error. Try again"
      End Select
    Resume in1
End Sub

```

Figure 5. Example That Handles Custom Errors With a Label

### Explanation of Callouts

The example that uses a label to handle a custom error includes the following items:

- 1 Place the code that handles the error immediately before the line of code that could cause an error.
- 2 Use a labeled section of code to handle the custom error.

## Handling Errors That a Siebel VB Method Returns

You must configure Siebel CRM to handle an error that a Siebel VB method returns differently from how you configure it to handle an error that a Visual Basic function or statement returns. You can use the following code to handle an error that a Siebel VB method creates. This code displays the text of the error message:

```

DisplayError:
  If ErrCode <> 0 Then
    ErrText = GetLastErrText
    TheApplication.RaiseErrorText ErrText
    Exit Sub
  End If

```

Note the following:

- A Siebel VB method uses numeric error codes in the range of 4000 through 4999.
- DisplayError is a label and is the target of a Go To statement that exists elsewhere in the code.
- The GetLastErrorText method is available only through an interface that is external to Siebel Tools. You can use it in Microsoft Visual Basic but not in Siebel VB.

For more information, see *Siebel Object Interfaces Reference*.

## Error Code and Error Text for Siebel VB Errors

Table 23 lists the run-time errors that Siebel VB returns. The On Error statement can handle these errors. The Err function can query the error code and the Error function can query the error text. For more information, see the following topics:

- ["Open File Method" on page 75](#)
- ["Get Error Code Method" on page 236](#)
- ["Get Error Code Line Method" on page 236](#)

Table 23. Run-Time Errors That Siebel VB Returns

Error Code	Error Text
5	Illegal function call
6	Overflow
7	Out of memory
9	Subscript out of range
10	Duplicate definition
11	Division by zero
13	Type Mismatch
14	Out of string space
19	No Resume
20	Resume without error
28	Out of stack space
35	Sub or Function not defined
48	Error in loading DLL
52	Bad file name or number
53	File not found
54	Bad file mode

Table 23. Run-Time Errors That Siebel VB Returns

Error Code	Error Text
55	File already open
58	File already exists
61	Disk full
62	Input past end of file
63	Bad record number
64	Bad file name
68	Device unavailable
70	Permission denied
71	Disk not ready
74	Can't rename with different drive
75	Path/File access error
76	Path not found
91	Object variable set to Nothing
93	Invalid pattern
94	Illegal use of NULL
102	Command failed
429	Object creation failed
438	No such property or method
439	Argument type mismatch
440	Object error
901	Input buffer is larger than 64K
902	Operating system error
903	External procedure not found
904	Global variable type mismatch
905	User-defined type mismatch
906	External procedure interface mismatch
907	Pushbutton required
908	Module has no MAIN
910	Dialog box not declared



# 4

## Methods Reference for Siebel VB

This chapter describes reference information for Siebel VB methods. It includes the following topics:

- [Overview of Siebel VB Language Reference on page 55](#)
- [Disk and Directory Control Methods on page 56](#)
- [File Control Methods on page 61](#)
- [File Input and Output Methods on page 80](#)
- [Code Setup and Control Methods on page 97](#)
- [Code Control Statements on page 114](#)
- [Variable Manipulation Methods on page 126](#)
- [String Methods on page 138](#)
- [Array Methods on page 160](#)
- [Mathematical Methods on page 165](#)
- [Date and Time Methods on page 179](#)
- [ODBC Methods on page 196](#)
- [Object Querying Methods on page 209](#)
- [Financial Methods on page 215](#)
- [Conversion Methods on page 222](#)
- [COM Methods on page 228](#)
- [Error Handling Methods on page 235](#)

### Overview of Siebel VB Language Reference

A Siebel VB method can access a component of the Siebel software architecture, such as applets and business components. You must preface a Siebel VB method with the name of the architecture component that it references. For example:

```
BusComp.GetFieldValue(fieldName)
```

where:

- BusComp is the name of the architecture component
- GetFieldValue is the name of the Siebel VB method

A Microsoft VB command does not reference a specific component of the Siebel software architecture. All the statements and methods that this chapter describes are Microsoft VB constructs except for the ODBC methods. For more information, see [“ODBC Methods” on page 196](#).

For more information, see [“About Functions and Methods” on page 14](#).

## Usage of the Dollar Sign

Some methods include the dollar sign (\$) in the method name. This dollar sign is optional:

- If you include it, then the return type is string.
- If you do not include it, then the return type is string variant.

This situation is true unless noted differently in the description for each method in this chapter.

For more information, see [“Variants” on page 26](#).

## Methods, Functions, and Statements Described in *Siebel Object Interfaces Reference*

*Siebel Object Interfaces Reference* describes a number of methods, functions, and statements that you can use with Siebel VB that this chapter does not describe. For more information about each of these methods, see the Siebel VB Quick Reference chapter in *Siebel Object Interfaces Reference*.

# Disk and Directory Control Methods

This topic describes methods that you can use to control the disk and directories. It includes the following topics:

- [“Change Directory Method” on page 56](#)
- [“Change Drive Method” on page 57](#)
- [“Create Directory Method” on page 58](#)
- [“Get Current Directory Method” on page 59](#)
- [“Remove Directory Method” on page 60](#)

## Change Directory Method

The Change Directory method changes the default directory of a drive. It does not return a value. It does the following depending on how you use the arguments:

- **Include the drive argument.** It changes the default directory on the current drive.
- **Include the first backslash in [\\]directory\.** It uses the path from the root directory.
- **Do not include the first backslash in [\\]directory\.** It changes to a directory that resides in the current directory.



The Change Directory method does not change the default drive. You can use the Change Drive method to change the default drive.

**Format**

`ChDir [drive][[\]directory\]directory`

The following table describes the arguments that you can use with this method.

Argument	Description
drive	The name of the drive that contains the desired default directory. You can use one of the following values: <ul style="list-style-type: none"> <li>■ A letter</li> <li>■ A string expression that identifies the drive name</li> </ul> A colon is not required.
[ <i>\</i> ] <i>directory</i> \	The path. You can use one of the following values: <ul style="list-style-type: none"> <li>■ Path to the directory that this method sets as the default directory.</li> <li>■ A string expression that identifies the path.</li> </ul> You can use this argument in the following situations: <ul style="list-style-type: none"> <li>■ The directory is not in the current directory of the specified drive</li> <li>■ You do not specify a drive and the directory is not in the default drive</li> </ul>
directory	The name of the directory that this method sets for the default directory, or a string expression that identifies this name.

**Example**

The following example changes the current directory to C:\windows:

```

Sub Button_Click
    Dim newdir as String
    newdir = "c:\windows"
    If CurDir <> newdir then
        ChDir newdir
    End If
End Sub
    
```

**Change Drive Method**

The Change Drive method changes the default drive. It does not return a value. The drive that it changes to the default drive must exist, and this drive must reside in the range that the LASTDRIVE statement in the config.sys file specifies.

You can use a colon as part of the name of the drive but it is not required.

You can use the Change Directory method to change the current directory on a drive.

### Format

ChDrive *drive*

The following table describes the arguments that you can use with this method.

Argument	Description
drive	A string expression that identifies the drive that this method makes the default drive. This method changes the drive according to one of the following values that you provide in the drive argument: <ul style="list-style-type: none"><li>■ <b>Null string ("").</b> The default drive remains the same.</li><li>■ <b>A string.</b> It uses the first letter only.</li><li>■ <b>You do not include the drive argument.</b> It displays an error message.</li></ul>

### Example

The following example changes the default drive to A:

```
Sub Button_Click
    Dim newdrive as String
    newdrive = "A"
    If Left(CurDir,2) <> newdrive then
        ChDrive newdrive
    End If
End Sub
```

## Create Directory Method

The Create Directory method creates a new directory. It does not return a value.

### Format

MkDir [*drive:*][\*directory*\]*directory*

The following table describes the arguments that you can use with this method.

Argument	Description
drive	<p>Optional. The name of the drive where this method creates the directory. You can use a letter or a string expression that identifies the drive name.</p> <p>If you do not include the drive argument, then this method creates the new directory on the current drive.</p> <p>If you include the drive argument, then you must include the colon (:).</p>
\directory\	<p>The path to the directory where this method creates the new directory, or a string expression that identifies this path.</p> <p>You can use this argument only if the Create Directory method must not create the directory in the following locations:</p> <ul style="list-style-type: none"> <li>■ On the current directory of the drive that the drive argument identifies</li> <li>■ On the default drive if you do not include the drive argument</li> </ul>
directory	<p>The name of the directory that this method creates, or a string expression that identifies this directory name.</p>

### Example

The following example creates a new temporary directory in the C:\ directory, and then deletes it:

```

Sub Button_Click
    Dim path as String
    On Error Resume Next
    path = CurDir(C)
    If path <> "C:\" then
        ChDir "C:\"
    End If
    Mkdir "C:\TEMP01"
    If Err = 75 then
    Else
        Rmdir "C:\TEMP01"
    End If
End Sub

```

## Get Current Directory Method

The Get Current Directory method returns the default directory of a drive. If you specify a null ("") drive argument, or if you do not include the drive argument, then it returns the path for the default drive.

The drive that this method examines must exist, and it must reside in the range that the LASTDRIVE statement in the config.sys file specifies.

You can use a colon as part of the name of the drive but it is not required.

You can use the Change Drive method to change the current drive. You can use the Change Directory method to change the current directory.

**Format**

curDir[\$][(*drive*)]

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
drive	The letter of the drive to search.

**Example**

The following example changes the current directory to C:\windows:

```

Sub Button_Click
    Dim newdir as String
    newdir = "c:\windows"
    If CurDir <> newdir then
        ChDir newdir
    End If
End Sub
    
```

## Remove Directory Method

The Remove Directory method removes a directory. It does not return a value. Note the following:

- The directory that it removes must be empty, except for the working directory or parent directory.
- It cannot remove the default directory. To remove the default directory, you must first make another directory current on the drive.

**Format**

Rmdir [*drive:*][\*directory*]*directory*

The following table describes the arguments that you can use with this method.

Argument	Description
drive	Optional. The name of the drive that contains the directory that this method removes. You can use a letter or a string expression that identifies the drive name.
\directory\	The path to the directory that this method removes.  You can use this argument only if the Remove Directory method must not remove the directory from the following locations: <ul style="list-style-type: none"> <li>■ On the current directory of the drive that the drive argument identifies</li> <li>■ On the default drive if you do not include the drive argument</li> </ul>
directory	The name of the directory that this method removes.

### Example

The following example makes a new temporary directory in the C:\ directory, and then deletes it:

```

Sub Button_Click
  Dim path as String
  On Error Resume Next
  path = CurDir(C)
  If path <> "C:\" then
    ChDir "C:\"
  End If
  Mkdir "C:\TEMP01"
  If Err = 75 then
  Else
    Rmdir "C:\TEMP01"
  End If
End Sub

```

## File Control Methods

This topic describes methods that you can use to control files. It includes the following topics:

- "Close All Files Method" on page 62
- "Close File Method" on page 63
- "Copy File Method" on page 64
- "Delete File Method" on page 65
- "Get File Attributes Method" on page 66
- "Get File Date Method" on page 67
- "Get File Length Method" on page 68
- "Get File Length 2 Method" on page 69
- "Get File Mode Method" on page 70

- ["Get File Names Method" on page 71](#)
- ["Get Free File Number Method" on page 72](#)
- ["Lock File Method" on page 73](#)
- ["Open File Method" on page 75](#)
- ["Rename File Method" on page 77](#)
- ["Set File Attributes Method" on page 78](#)
- ["Unlock File Method" on page 79](#)

## Close All Files Method

The Close All Files method closes every open file and writes to disk any data that currently resides in the operating system buffers. It does not return a value.

### Format

Reset

This method does not include any arguments.

### Example

The following example creates a file, puts the numbers 1 through 10 in this file, and then attempts to get past the end of the file. The On Error statement handles the error and Siebel VB continues to the Debugger code. This code uses the Reset statement to close the file before it exits:

```
Sub Button_Click
' Put the numbers 1-10 into a file
  Dim x as Integer
  Dim y as Integer
  On Error Goto Debugger
  Open "c:\temp001" as #1 Len = 2
  For x = 1 to 10
    Put #1,x, x
  Next x
  Close #1
  msgtext = "The contents of the file is:" & Chr(10)
  Open "C:\TEMP001" as #1 Len = 2
  For x = 1 to 10
    Get #1,x, y
    msgtext = msgtext & Chr(10) & y
  Next x
done:
  Close #1
  Kill "c:\temp001"
Exit Sub
```

```

Debugger:
  TheApplication.RaiseErrorText "Error " & Err & " occurred. Closing open file."
Reset
  Resume done
End Sub

```

## Close File Method

The Close File method closes a file and stops any input or output operations to this file. It does not return a value. When it runs, Siebel VB writes the final output buffer to the operating system buffer for this file. It frees the buffer space that is associated with the closed file. You can use the Close All Files method to cause the operating system to move the data in the buffers to disk. For more information, see ["Close All Files Method" on page 62](#).

### Format

```
Close [[#] filename [, [#] filename ... ]]
```

The following table describes the arguments that you can use with this method.

Argument	Description
filename	<p>The file number that the Open statement uses to open the file. It identifies the file to close.</p> <p>The value in the filename argument is the number that the Open statement assigns to the file. A pound sign (#) can precede this argument. If you do not include this argument, then the Close statement closes every open file.</p> <p>When a Close statement runs, the association of a file with filename is ended, and Siebel VB can reopen this file with the same or a different file number.</p>

### Example

The following example opens a file for random access, gets the contents of one variable, and then closes the file. The CreateFile subroutine creates the c:\temp001 file that the main subroutine uses:

```

(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
  Rem Put the numbers 1-10 into a file
  Dim x as Integer
  Open "c:\temp001" for Output as #1
  For x = 1 to 10
    write #1, x
  Next x
  Close #1
  Reset
End Sub

```

```

Sub Button1_Click
    Dim acctno as String * 3
    Dim recno as Long
    Dim msgtext as String
    Call CreateFile
    recno = 1
    newline = Chr(10)
    Open "c:\temp001" For Random As #1 Len = 3
    msgtext = "The account numbers are:" & newline & newline
    Do Until recno = 11
        Get #1,recno,acctno
        msgtext = msgtext & acctno
        recno = recno + 1
    Loop
    Close #1
    Reset
    Kill "c:\temp001"
End Sub

```

## Copy File Method

The Copy File method copies a file. It does not return a value. You cannot use the following wildcards in any of the arguments:

- \* (asterisk)
- ? (question mark)

The Copy File method cannot copy the file that the source argument identifies in the following situations:

- If Siebel VB opens this file for anything other than read access
- If other code has already opened and is using the file

### Format

FileCopy [*path1*] *source*, [*path2*] *target*

The following table describes the arguments that you can use with this method.

Argument	Description
path1	The path of the file to copy. If the value in the source argument does not reside in the current directory, then this argument is optional.
source	The name and, if necessary, the path of the file to copy.
path2	The path to a directory. This method copies the file to this directory. If you require that this method not copy the file to the current directory, then the path2 argument is optional.
target	A name. This method copies the file to this name.



**Example**

The following example copies one file to another file:

```
Sub Button_Click
  Dim oldfile, newfile
  On Error Resume Next
  oldfile = "c:\temp\trace.txt"
  newfile = "c:\temp\newtrace.txt"
  FileCopy oldfile,newfile
  If Err <> 0 then
    msgtext = "Error during copy. Rerun program."
  Else
    msgtext = "Copy successful."
  End If
End Sub
```

**Delete File Method**

The Delete File method deletes a file. It does not return a value. It only deletes files. It does not delete directories. You can use the Delete Directory method to delete a directory.

**Format**

kill *pathname*

The following table describes the arguments that you can use with this method.

Argument	Description
pathname	A string expression that identifies a valid DOS file specification. It can include paths and the following wildcards: <ul style="list-style-type: none"> <li>■ * (asterisk)</li> <li>■ ? (question mark)</li> </ul>

**Example**

The following example does the following work:

- 1 Prompts a user for an account number.
- 2 Opens a file.
- 3 Searches the file for the account number.
- 4 Displays the matching letter for that number.

The CreateFile subroutine creates the c:\temp001 file that the main subroutine uses. The first subroutine uses the Kill statement to delete the file after Siebel CRM finishes processing:

```

(general) (declarations)
Option Explicit
Declare Sub CreateFile
Global x as Integer
Global y(100) as String

Sub CreateFile
' Put the numbers 1-10 and letters A-J into a file
  Dim startletter
  Open "c:\temp001" for Output as #1
  startletter = 65
  For x = 1 to 10
    y(x) = Chr(startletter)
    startletter = startletter + 1
  Next x
  For x = 1 to 10
    Write #1, x,y(x)
  Next x
  Close #1
End Sub

Sub Button_Click
  Dim acctno as Integer
  Dim msgtext
  Call CreateFile
i: acctno = 6
  If acctno<1 Or acctno>10 then
    Goto i:
  End if
  x = 1
  Open "c:\temp001" for Input as #1
  Do Until x = acctno
    Input #1, x,y(x)
  Loop
  msgtext = "The letter for account number " & x & " is: _
    " & y(x)
  Close #1
  kill "c:\temp001"
End Sub

```

## Get File Attributes Method

The Get File Attributes method returns the attributes of a file, directory, or a volume label.

### Format

GetAttr(*pathname*)

The following table describes the arguments that you can use with this method.

Argument	Description
pathname	A string or string expression that evaluates to the name of the file, directory, or volume label to query. It cannot include the following wildcards: <ul style="list-style-type: none"> <li>■ * (asterisk)</li> <li>■ ? (question mark)</li> </ul>

**Returns**

The following table describes the values that the Get File Attributes method returns.

Value	Description
0	Normal file.
1	Read-only file.
2	Hidden file.
4	System file.
8	Volume label.
16	Directory.
32	Archive. The file has changed since the last backup occurred.
	If it returns any other value, then the return value represents the sum of the return values of the attributes that are set. For example, a return value of 6 represents a hidden system file, where 6 is 2 + 4.

**Related Topics**

- ["Get File Mode Method" on page 70](#)
- ["Set File Attributes Method" on page 78](#)

## Get File Date Method

The Get File Date method returns the last modification date and time of a file.

**Format**

FileDateTime(*pathname*)

The following table describes the arguments that you can use with this method.

Argument	Description
pathname	A string or string expression that evaluates to the name of the file to query. It can contain path and disk information. It cannot include the following wildcards: <ul style="list-style-type: none"> <li>■ * (asterisk)</li> <li>■ ? (question mark)</li> </ul>

## Get File Length Method

The Get File Length method returns the length in bytes of an open file. The file must already be open to use this method.

### Format

Lof(*filenumber*)

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file.

### Example

The following example opens a file and prints the contents of this file to the screen:

```

Sub Button_Click
    Dim fname As String, fchar() As String
    Dim x As Integer, msgtext As String, newline As String
    newline = Chr(10)
    fname = "d:\temp\trace.txt"
    On Error Resume Next
    Open fname for Input as #1
    If Err <> 0 then
        Exit Sub
    End If
    msgtext = "The contents of " & fname & " is: " _
        & newline & newline
    Redim fchar(Lof(1))
    For x = 1 to Lof(1)
        fchar(x) = Input(1, #1)
        msgtext = msgtext & fchar(x)
    Next x
    Close #1
End Sub

```

**Related Topics**

["Erase Array Method" on page 162](#)

## Get File Length 2 Method

The Get File Length 2 method returns the length of a file. If the file is open, then it returns the length of the file before it was opened. The file can be closed or open to use this method.

**Format**

FileLen(*pathname*)

The following table describes the arguments that you can use with this method.

Argument	Description
pathname	A string or string expression that evaluates to the name of the file to query. It cannot include the following wildcards: <ul style="list-style-type: none"> <li>■ * (asterisk)</li> <li>■ ? (question mark)</li> </ul>

**Example**

The following example returns the length of a file:

```

Sub Button_Click
  Dim length as Long
  Dim userfile as String
  Dim msgtext
  On Error Resume Next
  msgtext = "Enter a file name:"
  userfile = "trace.txt"
  length = FileLen(userfile)
  If Err <> 0 then
    msgtext = "Error occurred. Rerun program."
  Else
    msgtext = "The length of " & userfile & " is: " & length
  End If
End Sub

```

## Get File Mode Method

The Get File Mode method returns the file mode or the operating system handle for an open file. The following table describes this return value.

Value of Returntype Argument	Description of the Return Value
1	The file mode of the open file: <ul style="list-style-type: none"> <li>■ <b>1.</b> Input mode.</li> <li>■ <b>2.</b> Output mode.</li> <li>■ <b>8.</b> Append mode.</li> </ul>
2	The operating system handle of the open file.

### Format

FileAttr(*filenumber*, *returntype*)

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file.
returntype	An integer that identifies the type of information to return.

### Example

The following example does one of the following:

- If the open file is in input mode or output mode, then it closes this open file.
- If the open file is in append mode, then it writes a range of numbers to this file.

The CreateFile subroutine creates the file and leaves it open:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
    Rem Put the numbers 1-10 into a file
    Dim x as Integer
    Open "c:\temp001" for Output as #1
    For x = 1 to 10
        Write #1, x
    Next x
End Sub

Sub Button_Click
    Dim filemode as Integer
    Dim attrib as Integer
    Call CreateFile
```

```

attrib = 1
filemode = FileAttr(1,attrib)
If filemode = 1 or 2 then
  Close #1
Else
  For x = 11 to 15
    write #1, x
  Next x
  Close #1
End If
Kill "c:\temp001"
End Sub

```

## Get File Names Method

The Get File Names method is a standard Visual Basic method that returns the first file name it finds that matches the value in the pathname argument and that possesses the attributes that you specify in the attributes argument. If it does not find a file, then it returns a null string ("").

### Format

Dir[\$] [(*pathname*[, *attributes*])]

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
pathname	A string or string expression that evaluates to a path or file name.
attributes	An integer expression that specifies the file attributes to choose.

### Usage for the Attributes Argument

You can use the integer values for the attributes argument described in the following table to return a specific type of file.

Value in Attributes Argument	File Type
0 (default)	Normal files with no attributes set.
2	Normal and hidden files.
4	Normal and system files.
8	Volume label only.
16	Normal files and directories.

You can add values to choose multiple attributes. For example, to return normal files, hidden files, and system files, you set the attributes argument to 6, where 6 equals 0 plus 2 plus 4.

If you set the attributes argument to 8, then this method returns one of the following values:

- The volume label of the drive that you specify in the pathname argument.
- The current drive if you do not specify a drive in the pathname argument.

### Usage for the Pathname Argument

The pathname argument can include a drive specification and the following wildcard characters:

- ? (question mark)
- \* (asterisk)

Siebel VB interprets a null string ("") in the pathname argument as the current directory. This value is equivalent to a period (.). You can use the Get File Names method again to get more matching file names, but this time do not include the pathname argument or the attributes argument.

### Example

The following example lists all the files that reside on drive A:

```
Sub Button_Click
    Dim msgReturn
    Dim directory, count
    Dim x, msgtext
    Dim A()
    count = 1

    ReDim A(100)
    directory = Dir ("A:\*.*.")
    Do While directory <> ""
        A(count) = directory
        Count = count + 1
        directory = Dir
    Loop
    msgtext = "Contents of drive A:\ is:" & Chr(10) & Chr(10)
    For x = 1 to count
        msgtext = msgtext & A(x) & Chr(10)
    Next x
End Sub
```

## Get Free File Number Method

The Get Free File Number method returns the lowest unused file number. It does not include arguments. You can use it if you must supply a file number and must make sure that this file number is not already in use. You can use the return value in a subsequent Open statement.

### Format

FreeFile



**Example**

The following example opens a file and assigns to it the next file number that is available:

```
Sub Button_Click
    Dim filenumber As Integer
    Dim filename As String
    filenumber = FreeFile
    filename = "d:\temp\trace.txt"
    On Error Resume Next
    Open filename For Input As filenumber
    If Err <> 0 then
        Exit Sub
    End If
    Close #filenumber
End Sub
```

**Related Topics**

["Open File Method" on page 75](#)

## Lock File Method

The Lock File method controls access to an open file. It does not return a value.

**Format**

Lock [#] *filenumber* [, [*start*] [To *end*]]

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file.
start	A long integer that identifies the number of the first record or byte offset to lock or unlock.
end	A long integer that identifies the number of the last record or byte offset to lock or unlock.

**Specifying the Start Argument and End Argument**

The Lock File method locks the file according to the following modes:

- **Binary mode.** The start argument and the end argument identify byte offsets.
- **Random mode.** The start argument and the end argument identify record numbers:
  - If you include the start but not the end, then it locks only the record or byte that the start argument identifies.
  - If you include the end but not the start, then it locks records or bytes from the record number or offset 1 to the end.

- **Input mode, output mode, or append mode.** It locks the entire file. It ignores the start argument and the end argument.

### Removing Locks

You must use the Lock File method and the Unlock File method in pairs to remove a lock, and the arguments that you use with these methods must be identical. For more information, see [“Unlock File Method” on page 79](#).

You must configure Siebel VB to remove a lock on an open file before it closes the file. If you do not do this, then unpredictable results might occur.

### Example

In the following example, if the file is already in use, then this code locks the file that other users on a network share. The CreateFile subroutine creates the file that the main subroutine uses:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
  ' Put the letters A-J into the file
  Dim x as Integer
  Open "c:\temp001" for Output as #1
  For x = 1 to 10
    Write #1, Chr(x + 64)
  Next x
  Close #1
End Sub

Sub Button_Click
  Dim btngrp, icongrp
  Dim defgrp
  Dim answer
  Dim noaccess as Integer
  Dim msgabort
  Dim msgstop as Integer
  Dim acctname as String
  noaccess = 70
  msgstop = 16
  Call CreateFile
  On Error Resume Next
  btngrp = 1
  icongrp = 64
  defgrp = 0
  answer = 1
  If answer = 1 then
    Open "c:\temp001" for Input as #1
    If Err = noaccess then
      'File Locked -Aborted
    Else
      Lock #1
      Line Input #1, acctname
    End If
  End If
End Sub
```

```

        Unlock #1
    End If
    Close #1
End If
Kill "C:\TEMP001"
End Sub

```

## Open File Method

The Open File method opens a file for input or output. It does not return a value. Siebel CRM opens the file in the default character encoding that the local operating system uses. This method does not support Unicode.

### Format

Open *filename* [For *mode*] [Access *access*] [*lock*] As [#] *filenumber* [Len = *reclen*]

The following table describes the arguments that you can use with this method.

Argument	Description
filename	<p>A string or string expression that identifies the name of the file to open. If this file does not exist, then this method creates it if opened in one of the following modes:</p> <ul style="list-style-type: none"> <li>■ Append</li> <li>■ Binary</li> <li>■ Output</li> <li>■ Random Modes</li> </ul> <p>This file must be open before Siebel VB can perform any input or output operation on it.</p>
mode	<p>A keyword that identifies the purpose for which this method opens the file. If you do not include the mode argument, then this method defaults the mode to random.</p>
access	<p>A keyword that identifies the method to access the file. If you do not include the access argument for random or binary modes, then the Open File method attempts to access the file in the following order:</p> <ol style="list-style-type: none"> <li>1 Read Write</li> <li>2 Write</li> <li>3 Read</li> </ol>

Argument	Description
lock	A keyword that designates the access method that other processes can use to open this file. If you do not include the lock argument, then other processes can open the file that the filename argument identifies. Other processes cannot perform any file operation on the file while the original process still has the file open.
filenumber	An integer that identifies the file while it is open. You can use the Get Free File Number method to find the next available value that you can use in the filenumber argument. For more information, see <a href="#">"Get Free File Number Method" on page 72</a> .
reclen	In a random or binary file, the length of the records. This method ignores the reclen argument for the following modes: <ul style="list-style-type: none"> <li>■ Input</li> <li>■ Output</li> <li>■ Append</li> </ul>

### Usage

The following table describes the keywords that you can use with this method.

Type of Keyword	Keyword	Description
Mode	Input	Reads data from the file sequentially.
	Output	Puts data into the file sequentially.
	Append	Adds data to the file sequentially.
	Random	Gets data from the file by random access.
	Binary	Gets binary data from the file.
Access	Read	Reads data only from the file.
	Write	Writes data only to the file.
	Read Write	Reads or writes data to the file.
Lock	Shared	Read or write is available on the file.
	Lock Read	Only read is available.
	Lock Write	Only write is available.
	Lock Read Write	No read or write is available.

### Example

The following example opens a file for random access, gets the contents of the file, and then closes the file. The CreateFile subroutine creates the c:\temp001 file that the main subroutine uses:

```

(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
    ' Put the numbers 1-10 into a file
    Dim x as Integer
    Open "c:\temp001" for Output as #1
    For x = 1 to 10
        Write #1, x
    Next x
    Close #1
End Sub

Sub Button_Click
    Dim acctno as String * 3
    Dim recno as Long
    Dim msgtext as String
    Call CreateFile
    recno = 1
    newline = Chr(10)
    Open "c:\temp001" For Random As #1 Len = 3
    msgtext = "The account numbers are:" & newline
    Do Until recno = 11
        Get #1,recno,acctno
        msgtext = msgtext & acctno
        recno = recno + 1
    Loop
    Close #1
    Kill "c:\temp001"
End Sub

```

## Rename File Method

The Rename File method renames a file or copies a file from one directory to another directory. It does not return a value. The file that this method renames must be closed. Siebel VB creates an error message in the following situations:

- The file that the oldfilename argument identifies is open.
- The file that the newfilename argument identifies already exists.

If you use the Rename File method with a Siebel application, and if you do not include the path2 argument, then it places a copy of the original file in the following directory under the new name:

```
c:\siebel\bin
```

### Format

Name [*path1*\]*oldfilename* As [*path2*\]*newfilename*

The following table describes the arguments that you can use with this method.

Argument	Description
path1	A string expression that contains the path to the current file location. If the file is not in the current directory of the current drive, then you must include this argument.
oldfilename	A string expression that contains the name of the file that this method renames.
path2	A string expression that contains the path to the location where the renamed file must reside. If you do not include this argument, then this method saves the file in the current directory of the current drive.
newfilename	A string expression that contains the new name for the file.

### Example

The following example creates the c:\temp001 file, renames this file to c:\temp002, and then deletes these files. It calls the CreateFile subroutine to create the c:\temp001 file:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
    Rem Put the numbers 1-10 into a file
    Dim x as Integer
    Dim y()
    Dim startletter
    Open "C:\TEMP001" for Output as #1
    For x = 1 to 10
        Write #1, x
    Next x
    Close #1
End Sub

Sub Button_Click
    Call CreateFile
    On Error Resume Next
    Name "C:\TEMP001" As "C:\TEMP002"
    Kill "TEMP001"
    Kill "TEMP002"
End Sub
```

## Set File Attributes Method

The Set File Attributes method sets the file attributes for a specified file. It does not return a value.

You cannot use a wildcard in the pathname argument. If the file is open, you can modify the file attributes, but only if it is opened for Read access.

**Format**

SetAttr *pathname, attributes*

The following table describes the arguments that you can use with this method.

Argument	Description
pathname	A string or string expression that evaluates to the name of the file.
attributes	An integer expression that contains the new attributes of the file.

**Usage**

The following table describes the attributes you can modify.

Value	Description
0	Normal file.
1	Read-only file.
2	Hidden file.
4	System file.
32	Archive. File has changed since the last backup.

**Example**

For an example, see ["Select Case Statement" on page 123](#).

## Unlock File Method

The Unlock File method controls access to an open file. It does not return a value.

You must use the Lock File method and the Unlock File method in pairs to unlock a file, and the arguments that you use with these methods must be identical. For more information, see ["Specifying the Start Argument and End Argument" on page 73](#).

You must remove a lock before you close the file. For more information, see ["Removing Locks" on page 74](#).

**Format**

unlock [#] *filename*[, {*record* | [*start*] To *end*} ]

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file. For more information, see <a href="#">"Open File Method" on page 75</a> .
record	An integer that identifies the first record to unlock.
start	A long integer that identifies the first record or byte offset to unlock.
end	A long integer that identifies the last record or byte offset to unlock.

### Example

For an example of the Unlock statement, see ["Lock File Method" on page 73](#).

## File Input and Output Methods

This topic describes methods that you can use to manipulate file data. It includes the following topics:

- ["End of File Method" on page 80](#)
- ["Get Characters From File Method" on page 82](#)
- ["Get File Contents Method" on page 82](#)
- ["Get File Offset Method" on page 85](#)
- ["Get File Position Method" on page 86](#)
- ["Get Line From File Method" on page 87](#)
- ["Parse File Contents Method" on page 88](#)
- ["Print Spaces Method" on page 90](#)
- ["Print Data to File Method" on page 91](#)
- ["Set File Position Method" on page 92](#)
- ["Set File Width Method" on page 93](#)
- ["Set Print Position Method" on page 94](#)
- ["Write Data to File Method" on page 94](#)
- ["Write Variable to File Method" on page 96](#)

### End of File Method

The End of File method determines if the end of an open file has been reached. It returns one of the following values:

- **-1.** The end of the file has been reached.



- 0. The end of the file has not been reached.

**Format**

Eof(*filenumber*)

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number you use in the Open statement to open the file. For information about assigning a number to a file when it is opened, see <a href="#">"Open File Method" on page 75</a> .

**Example**

The following example uses the End of File method to read records from a random file. It keeps the Get statement from attempting to read beyond the end of the file. The CreateFile subroutine creates the C:\TEMP001 file that the main subroutine uses:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
    ' Put the numbers 1-10 into a file
    Dim x as Integer
    Open "C:\TEMP001" for Output as #1
    For x = 1 to 10
        Write #1, x
    Next x
    Close #1
End Sub

Sub Button_Click
    Dim acctno
    Dim msgtext as String
    newline = Chr(10)
    Call CreateFile
    Open "C:\temp001" For Input As #1
    msgtext = "The account numbers are:" & newline
    Do While Not Eof(1)
        Input #1,acctno
        msgtext = msgtext & newline & acctno & newline
    Loop
    Close #1
    Kill "C:\TEMP001"
End Sub
```

For another example, see ["Get Free File Number Method" on page 72](#):

## Get Characters From File Method

The Get Characters From File method returns a string that contains the characters that it reads from a file. It advances the file pointer according to the number of characters it reads. Unlike the Parse File Contents method, the Get Characters From File method returns every character it reads, including carriage returns, line feeds, and leading spaces.

The input buffer can hold a maximum of 32K characters. If the Get Characters From File method must get an amount of data that exceeds this maximum, then you must call it multiple times, processing 32K characters each time you call it.

### Format

Input[\$] (*number*, [#] *filenumber*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
number	An integer that identifies the number of bytes to read from the file.
filenumber	A number that identifies the open file to use.

## Get File Contents Method

The Get File Contents method reads the content of a file opened in random or binary mode, and then places this content in a variable. It does not return a value.

### Format

Get [#] *filenumber*, [*recnumber*], *varName*

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file. For information about how Siebel VB numbers a file when it opens a file, see <a href="#">"Open File Method" on page 75</a> .
recnumber	<p>An expression of type long. It contains a value that depends on one of the following modes:</p> <ul style="list-style-type: none"> <li>■ <b>Random mode.</b> The record number at which to start reading.</li> <li>■ <b>Binary mode.</b> The byte offset at which to start reading.</li> </ul> <p>The recnumber argument is in the range of 1 through 2,147,483,647. If you do not include this argument, then this method uses the next record or byte.</p> <p>You must include the commas before and after the recnumber argument even if you do not include the recnumber argument.</p>
varName	<p>The name of a variable. This method reads file data into this variable. It can be any variable type except for the following:</p> <ul style="list-style-type: none"> <li>■ <b>Object.</b></li> <li>■ <b>Array.</b> You can use a single array element.</li> </ul>

### Usage with Random Mode

For Random mode, the Get File Contents method reads content from the file in chunks whose size is equal to the size specified in the Len clause of the Open statement. It does one of the following, depending on the size of the variable that the varName argument identifies:

- **The variable is smaller than the record length.** It discards the additional content.
- **The variable is larger than the record length.** It creates an error.

The Get File Contents method handles content differently depending on the following type of variable:

- **Variable length string variable.** it reads two bytes of content that identifies the length of the string, and then copies the contents into the variable that the varName argument identifies.
- **Variant variable.** It reads two bytes of content that identifies the type of the variant, and then it copies the body of the variant into the varName argument. A variant that includes a string includes the following information:
  - a Two bytes of data type information.
  - b Two bytes of length data.
  - c The body of the string.
- **Custom variable.** It reads the content as if each member were read separately. No padding occurs between elements.

### Usage with Binary Mode

Usage with a file opened in Binary mode is the same as usage with a file opened in Random mode except for the following differences:

- The Get File Contents method reads variables from the disk without record padding.
- For a variable length string that is not part of a custom type, the Get File Contents method does not precede this variable with a two-byte string length. Instead, it reads the number of bytes as equal to the length of the variable that the varName identifies.

### Example

The following example opens a file for random access, gets the contents of this file, and then closes the file. The createfile subroutine creates the c:\temp001 file that the main subroutine uses:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
    ' Put the numbers 1-10 into a file
    Dim x as Integer
    Open "c:\temp001" for Output as #1
    For x = 1 to 10
        Write #1, x
    Next x
    Close #1
End Sub

Sub Button1_Click
    Dim acctno as String * 3
    Dim recno as Long
    Dim msgtext as String
    Call CreateFile
    recno = 1
    newline = Chr(10)
    Open "c:\temp001" For Random As #1 Len = 3
    msgtext = "The account numbers are:" & newline
    Do Until recno = 11
        Get #1, recno, acctno
        msgtext = msgtext & acctno
        recno = recno + 1
    Loop
    Close #1
    Kill "c:\temp001"
End Sub
```

### Related Topics

["Create Function Method" on page 102](#)

## Get File Offset Method

The Get File Offset method determines the current offset of a file. It returns a value depending on the following mode that it uses to open the file:

- **Random file.** It returns the number of the last record read or written.
- **File opened in append, input, or output mode.** It returns the current byte offset divided by 128.
- **File opened in binary mode.** It returns the offset of the last byte read or written.

The offset starts at 0 in a random file or binary file. A position starts at 1. For more information, see [“Get File Position Method” on page 86](#).

### Format

Loc(*filenumber*)

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file.

### Example

The following example creates a file of account numbers that the user enters. When the user finishes, it displays the offset of the file of the last entry that the user made:

```
Sub Button_Click
    Dim filepos as Integer
    Dim acctno() as Integer
    Dim x as Integer
    x = 0
    Open "c:\TEMP001" for Random as #1
    Do
        x = x + 1
        Redim Preserve acctno(x)
        acctno(x) = 234
        If acctno(x) = 0 then
            Exit Do
        End If
        Put #1,, acctno(x)
    Loop
    filepos = Loc(1)
    Close #1
    Kill "C:\TEMP001"
End Sub
```

## Get File Position Method

The Get File Position method returns the current position of an open file depending on the following mode that it uses to open the file:

- **Random mode.** It returns the number of the next record to be read or written.
- **Other modes** It returns the file offset of the next operation.

The first byte in the file is at offset 1, the second byte is at offset 2, and so on. The return value is a long number.

### Format

Seek(*filenumber*)

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file. For more information, see <a href="#">"Open File Method" on page 75</a> .

### Example

The following example reads the contents of a sequential file line by line to a carriage return, and then displays the results. The CreateFile subroutine creates the c:\temp001 file that the main subroutine uses:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
    Rem Put the numbers 10-100 into a file
    Dim x as Integer
    Open "c:\temp001" for Output as #1
    For x = 10 to 100 step 10
        Write #1, x
    Next x
    Close #1
End Sub

Sub Button_Click
    Dim testscore as String
    Dim x
    Dim y
    Dim newline
    Call CreateFile
    Open "c:\temp001" for Input as #1
    x = 1
    newline = Chr(10)
    msgtext = "The test scores are: " & newline
    Do Until x = Lof(1)
```

```

Line Input #1, testscore
x = x + 1
y = Seek(1)
If y>Lof(1) then
    x = Lof(1)
Else
    Seek 1,y
End If
msgtext = msgtext & newline & testscore
Loop
Close #1
Kill "c:\temp001"
End Sub

```

## Get Line From File Method

The Get Line From File method reads a line from a sequential file, and then saves it in a string variable. It does not return a value. You can use it to read lines of text from a text file where a carriage return separates each data element. You can use a read method to read data from a file that includes values and commas that separate each of these values.

### Format A

Line Input [#] *filename*, *varName*

### Format B

Line Input [*prompt*,] *varName*

### Arguments

The following table describes the arguments that you can use with this method.

Argument	Description
filename	This method does the following depending on if you include the filename argument: <ul style="list-style-type: none"> <li>■ <b>Include filename argument.</b> It uses the file number that the Open statement uses to open the file.</li> <li>■ <b>Do not include filename argument.</b> It reads the line from the keyboard.</li> </ul>
varName	A string variable. This method saves a line of data or user input into this variable.
prompt	A string literal that prompts the user for keyboard input. If you do not include the prompt argument, then this method displays a question mark (?) as the prompt.

**Example**

The following example reads the contents of a sequential file line by line up to a carriage return, and then displays the result. The CreateFile subroutine creates the C:\temp001 file that the main subroutine uses:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
    Rem Put the numbers 1-10 into a file
    Dim x as Integer
    Open "c:\temp001" for Output as #1
    For x = 1 to 10
        Write #1, x
    Next x
    Close #1
End Sub

Sub Button_Click
    Dim testscore as String
    Dim x
    Dim y
    Dim newline
    Call CreateFile
    Open "c:\temp001" for Input as #1
    x = 1
    newline = Chr(10)
    msgtext = "The contents of c:\temp001 is: " & newline
    Do Until x = Lof(1)
        Line Input #1, testscore
        x = x + 1
        y = Seek(1)
        If y>Lof(1) then
            x = Lof(1)
        Else
            Seek 1,y
        End If
        msgtext = msgtext & testscore & newline
    Loop
    Close #1
    Kill "c:\temp001"
End Sub
```

**Parse File Contents Method**

The Parse File Contents method reads data from a sequential file, and then saves this data to different variables. It does not return a value.

**Format**

Input [#] *filename*, *variable*[, *variable*]....



The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file.
variable	One or more variables to contain the values that this method reads from the file. A comma separates each variable.

### Example

The following example does the following work:

- 1 Prompts a user for an account number.
- 2 Opens a file.
- 3 Searches the file for the account number.
- 4 Displays the matching letter for that number.

This example uses the Input statement to increase the value of x and at the same time to get the letter associated with each value. The CreateFile subroutine creates the c:\temp001 file that the main subroutine uses:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Global x as Integer
Global y(100) as String

Sub CreateFile
' Put the numbers 1-10 and letters A-J into a file
  Dim startletter
  Open "c:\temp001" for Output as #1
  startletter = 65
  For x = 1 to 10
    y(x) = Chr(startletter)
    startletter = startletter + 1
  Next x
  For x = 1 to 10
    Write #1, x,y(x)
  Next x
  Close #1
End Sub

Sub Button2_Click
  Dim acctno as Integer
  Dim msgtext
  Call CreateFile
start: acctno = 2
  If acctno<1 Or acctno>10 then
    Goto start:
  End if
  x = 1
```

```

Open "c:\temp001" for Input as #1
Do Until x = acctno
    Input #1, x,y(x)
Loop
    msgtext = "The letter for account number " & x & " is: " _
        & y(x)
Close #1
Kill "C:\TEMP001"
End Sub

```

## Print Spaces Method

The Print Spaces method prints a number of spaces. It returns a string of spaces in the target of a Print statement. You can use it only in a Print statement. To determine the number of spaces to print, it uses different rules according to the following values:

- **The value in the number argument is less than the total line width.** It prints the number spaces according to the value of the number argument.
- **The value in the number argument is greater than the total line width.** It prints the number of spaces according to the modulus of the following calculation:

Value in the argument that the Print Spaces method receives divided by the length of the string to print.

The modulus in this context is the remainder of a calculation rounded to an integer.

- **X is less is than the value of the number argument or number Mod width,** where x is the difference between the current print position and the output line width. It skips to the next line and prints the value of the number argument minus x spaces.

You can use the Set File Width statement to set the width of a print line. For more information, see ["Set File Width Method" on page 93](#).

### Format

*Spc(number)*

The following table describes the arguments that you can use with this method.

Argument	Description
number	An integer or integer expression that specifies the number of spaces to print.

### Example

The following example prints five spaces and the following string to a file:

ABCD

This example divides 15 by 10 with a remainder of 5 to determine the five spaces:

```

Sub Button_Click
  Dim str1 as String
  Dim x as String * 10
  str1 = "ABCD"
  Open "C:\temp001" For Output As #1
  Width #1, 10
  Print #1, Spc(15); str1
  Close #1
  Open "C:\TEMP001" as #1 Len = 12
  Get #1, 1,x
  Close #1
  Kill "C:\temp001"
End Sub

```

## Print Data to File Method

The Print Data to File method prints data to an open file. It does not return a value. You can use the following methods in a Print statement:

- **Print Spaces method.** Inserts a given number of spaces. For more information, see ["Print Spaces Method" on page 90](#).
- **Set Print Position method.** Moves the print position to a desired column. For more information, see ["Set Print Position Method" on page 94](#).

The Print statement supports only elementary Visual Basic data types. For more information on parsing this statement, see ["Get Characters From File Method" on page 82](#).

### Format

Print [#][*filenumber*,] *expressionList* [{;|, }]

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file. The Print Data to File method prints data to this file. For more information, see <a href="#">"Open File Method" on page 75</a> .
expressionList	A list of values that this method prints. It prints these values in the form of literals or expressions. It determines where output for the next Print statement to the same output file must begin.  If you do not include the expressionList argument, then this method writes a blank line to the file.

### Usage for the Expression List

You can use one of the following characters to separate each value in the expressionList argument:

- **Semicolon (;).** The next value must occur immediately after the preceding value without intervening white space.
- **Comma (,).** The next value must occur at the next print zone. A new print zone begins every 14 spaces.

If you do not specify a semicolon or a comma, then the Print Data to File method creates a CR-LF (carriage return - line feed) pair and the next Print statement prints on the next line.

## Set File Position Method

The Set File Position method sets the position of the next read or write operation in an open file. It does not return a value. If you write to a file after reading beyond the end of the file, then this method increases the file length. If a read operation attempts to specify a negative or zero position, then Visual Basic returns an error message.

### Format

Seek [#] *filenumber*, *position*

The following table describes the arguments that you can use with this method.

Argument	Description
filenumber	The file number that the Open statement uses to open the file. For more information, see <a href="#">"Open File Method" on page 75</a> .
position	<p>An expression of type long that identifies the position depending on the following mode that this method uses to open the file:</p> <ul style="list-style-type: none"> <li>■ <b>Random mode.</b> The position of a record number.</li> <li>■ <b>Other modes.</b> The position of the byte offset.</li> </ul> <p>The position is in the range of 1 through 2,147,483,647. The first byte or record in the file is at position 1, the second is at position 2, and so on.</p>

### Example

The following example reads the contents of a sequential file line by line to a carriage return, and then displays the results. The CreateFile subroutine creates the c:\temp001 file that the main subroutine uses:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
    Rem Put the numbers 10-100 into a file
    Dim x as Integer
    Open "c:\temp001" for Output as #1
    For x = 10 to 100 step 10
        Write #1, x
    
```

```

    Next x
    Close #1
End Sub

Sub Button_Click
    Dim testscore as String
    Dim x
    Dim y
    Dim newline
    Call CreateFile
    Open "c:\temp001" for Input as #1
    x = 1
    newline = Chr(10)
    msgtext = "The test scores are: " & newline
    Do Until x = Lof(1)
        Line Input #1, testscore
        x = x + 1
        y = Seek(1)
        If y>Lof(1) then
            x = Lof(1)
        Else
            Seek 1,y
        End If
        msgtext = msgtext & newline & testscore
    Loop
    Close #1
    Kill "c:\temp001"
End Sub

```

## Set File Width Method

The Set File Width method sets the output line width for an open file. It does not return a value.

### Format

width [#] *filename*, *width*

The following table describes the arguments that you can use with this method.

Argument	Description
filename	The file number that the Open statement uses to open the file. For more information, see <a href="#">"Open File Method" on page 75</a> .
width	An integer expression that specifies the width of the output line. A value of zero (0) specifies that no line length limit exists. The default value is zero (0).

### Example

For an example, see ["Print Spaces Method" on page 90](#)

## Set Print Position Method

The Set Print Position method sets the current print position. It does not return a value. You can use it only in a Print statement. Position number 1 is the leftmost print position. This method sets the new print position according to one of the following values of the position:

- **The value in the position argument is less than the total line width.** It sets the new print position to the value in the position argument.
- **The value in the position argument is greater than the total line width.** It sets the new print position according to the following calculation:  
 The remainder of the input position argument divided by the length of the string
- **The current print position is greater than the position or the position Mod width.** It skips to the next line and sets the print position to the value in the position argument or to the value in the position Mod width.

You can use the Set File Width statement to set the width of a print line. For more information, see [“Set File Width Method” on page 93](#).

### Format

Tab(*position*)

The following table describes the arguments that you can use with this method.

Argument	Description
position	The position at which Siebel VB begins to print.

### Example

The following example prints the octal values for the numbers from 1 through 25. It uses the Set Print Position method to insert five character spaces between the values:

```

Sub Button_Click
    Dim x As Integer
    Dim y As String
    For x = 1 to 25
        y = Oct$(x)
        Print x Tab(10) y
    Next x
End Sub
    
```

## Write Data to File Method

The Write Data to File method writes data to an open sequential file. It does not return a value. You must open the file in output mode or in append mode. If you do not include the expressionList argument, then it writes a blank line to the file. For more information, see [“Lock File Method” on page 73](#).

The Write statement places quotes around the string that it writes to the file.

**Format**

write [#] *filename* [, *expressionList*]

The following table describes the arguments that you can use with this method.

Argument	Description
filename	The file number that the Open statement uses to open the file. For more information, see <a href="#">"Open File Method" on page 75</a> .
expressionList	One or more values to write to the file.

**Example**

The following example writes a variable to a file according to a comparison of the last saved time of the file and the current time:

```

Sub Button_Click
  Dim tempfile
  Dim filetime, curtime
  Dim msgtext
  Dim acctno(100) as single
  Dim x, I
  tempfile = "C:\TEMP001"
  Open tempfile For Output As #1
  filetime = FileDateTime(tempfile)
  x = 1
  I = 1
  acctno(x) = 0
  Do
    curtime = Time
    acctno(x) = 88
    If acctno(x) = 99 then
      If x = 1 then Exit Sub
      For I = 1 to x-1
        Write #1, acctno(I)
      Next I
      Exit Do
    ElseIf (Minute(filetime) + 2) <= Minute(curtime) then
      For I = I to x-1
        Write #1, acctno(I)
      Next I
    End If
    x = x + 1
  Loop
  Close #1
  x = 1
  msgtext = "Contents of C:\TEMP001 is:" & Chr(10)
  Open tempfile for Input as #1
  Do While Eof(1) <> -1
    Input #1, acctno(x)
  
```

```

        msgtext = msgtext & Chr(10) & acctno(x)
        x = x + 1
    Loop
    Close #1
    Kill "C:\TEMP001"
End Sub

```

**Related Topics**

["Set Print Position Method" on page 94](#)

## Write Variable to File Method

The Write Variable to File method writes a variable to a file opened in random mode or binary mode. It does not return a value. Usage for this method with random mode and binary mode is the same usage for these modes with the Get File Contents method. For more information, see ["Usage with Random Mode" on page 83](#) and ["Usage with Binary Mode" on page 84](#).

The Put statement uses the default character encoding of the local operating system. It does not write to the file in Unicode format.

**Format**

Put [#] *filename*, [*recnumber*], *varName*

The following table describes the arguments that you can use with this method.

Argument	Description
filename	The file number that the Open statement uses to open the file. For more information, see <a href="#">"Open File Method" on page 75</a> .
recnumber	An expression of type long. It contains a value that depends on one of the following modes: <ul style="list-style-type: none"> <li>■ <b>Random mode.</b> The record number at which to start reading.</li> <li>■ <b>Binary mode.</b> The byte offset at which to start reading.</li> </ul> The recnumber argument is in the range of 1 through 2,147,483,647. If you do not include this argument, then this method uses the next record or byte.  You must include the commas before and after the recnumber argument even if you do not include the recnumber argument.
varName	The name of the variable that contains the data to write. It can be any variable type except for the following types: <ul style="list-style-type: none"> <li>■ <b>Object.</b></li> <li>■ <b>Application data.</b></li> <li>■ <b>Array.</b> You can use a single array element.</li> </ul>



**Example**

The following example opens a file for random access, puts the values 1 through 10 in this file, prints the contents of the file, and then closes it:

```
Sub Button_Click
' Put the numbers 1-10 into a file
  Dim x As Integer, y As Integer
  Open "C:\TEMP001" as #1
  For x = 1 to 10
    Put #1,x, x
  Next x
  msgtext = "The contents of the file is:" & Chr(10)
  For x = 1 to 10
    Get #1,x, y
    msgtext = msgtext & y & Chr(10)
  Next x
  Close #1
  Kill "C:\TEMP001"
End Sub
```

## Code Setup and Control Methods

This topic describes items that you can use to setup and control Siebel VB code. It includes the following topics:

- ["Call Application Method" on page 97](#)
- ["Call Subroutine Method" on page 98](#)
- ["Create Subroutine Method" on page 100](#)
- ["Create Function Method" on page 102](#)
- ["Declare Custom Data Type Method" on page 104](#)
- ["Declare Procedure Method" on page 105](#)
- ["Declare Symbolic Constant Method" on page 107](#)
- ["Get Environment Setting Method" on page 107](#)
- ["Remove Object Method" on page 108](#)
- ["Send Keystrokes Method" on page 109](#)
- ["Use Clipboard Methods" on page 113](#)

### Call Application Method

The Call Application method starts a Microsoft Windows application. It returns the task ID of this application, which is a unique number that identifies the running code.

The pathname argument can contain the name of any valid BAT, COM, EXE, or PIF file. You can include arguments and command line switches. If the pathname argument does not contain a valid executable file name, or if the Shell statement cannot start the code, then this method creates an error message.

**Format**

Shell(*pathname*, [*windowStyle*])

The following table describes the arguments that you can use with this method.

Argument	Description
pathname	A string or string expression that evaluates to the name of the code to run.
windowStyle	One of the following integers that specifies how to display the window: <ul style="list-style-type: none"> <li>■ <b>1.</b> Normal window with focus.</li> <li>■ <b>2.</b> Minimized window with focus.</li> <li>■ <b>3.</b> Maximized window with focus.</li> <li>■ <b>4.</b> Normal window without focus.</li> <li>■ <b>7.</b> Minimized window without focus.</li> </ul> If you do not include the windowStyle argument, then Siebel VB uses the default value of 1.

**Example**

The following example opens Microsoft Excel when the user clicks a button:

```
Sub Button1_Click
    Dim i as long
    i = Shell("C:\Program Files\Microsoft
    Office\Office\EXCEL.EXE",1)
End Sub
```

For other examples, see ["Get Right String Method" on page 148](#) and ["Send Keystrokes Method" on page 109](#).

For more information, see ["Send Keystrokes Method" on page 109](#).

## Call Subroutine Method

The Call Subroutine method is a control structure that directs flow to a subroutine or function. It returns one of the following values:

- If it calls a function, then it returns the output of the function.
- if it calls a subroutine, then it returns nothing.

You can use this method to call a subroutine or function that is written in Visual Basic or to call C code in a DLL. A Declare Procedure method must describe this C code and it must be implicit in the application. You must make sure the DLL is present on every Siebel Server. For more information, see ["Declare Procedure Method" on page 105](#).

If you use the Call Subroutine method, then it is recommended that you use the following guidelines:

- ["Pass Values Through Reference" on page 19](#)
- ["Give Each Argument a Name" on page 20](#)

**Format A**

Call *subroutine\_name* [(*argument\_list*)]

**Format B**

*subroutine\_name* *argument\_list*

where:

- *subroutine\_name* is the name of the subroutine or function. Siebel VB passes control to this subroutine or function.

**Arguments**

The following table describes the arguments that you can use with this method.

Argument	Description
argument_list	The arguments that Siebel VB passes to the subroutine or function.

**Example**

The following example does the following:

- 1 Calls a subroutine named CreateFile to open a file.
- 2 Writes the numbers 1 through 10 in this file.
- 3 The calling code examines the file mode, and then closes the file if the mode is 1 or 2:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFile

Sub CreateFile
  Rem Put the numbers 1-10 into a file
  Dim x as Integer
  Open "c:\temp001" for Output as #1
  For x = 1 to 10
    Write #1, x
  Next x
End Sub
```

```

Sub Button1_Click
  Dim filemode as Integer
  Dim attrib as Integer
  Call CreateFile
  attrib = 1
  filemode = FileAttr(1,attrib)
  If filemode = 1 or filemode = 2 then
    Close #1
  End If
  Kill "c:\temp001"
End Sub

```

**Related Topics**

["Declare Procedure Method" on page 105](#)

## Create Subroutine Method

The Create Subroutine method is a control structure that defines a subroutine. It does not return a value. It returns flow to the caller when Siebel VB encounters the End Sub statement or an Exit Sub statement.

**Format**

```

[Static] [Private] sub name [[Optional] argument [As type], ...]
End Sub

```

The following table describes the arguments that you can use with this method.

Argument	Description
name	The name of the subroutine.
argument	A list of argument names that includes commas that separate each name. For more information, see <a href="#">"Specifying Arguments" on page 101</a> .
type	The data type of the argument.

**Usage**

Note the following:

- For important caution information, see ["Caution About Writing a Custom Function or Subroutine" on page 103](#).
- A call to a subroutine stands alone as a separate statement. For more information, see ["Call Subroutine Method" on page 98](#)).
- Siebel VB supports recursion.

- A Visual Basic procedure passes values through reference. This means that if a procedure assigns a value to an argument, then it modifies the variable that the caller passes. You must use this feature with caution. For more information, see ["Pass Values Through Reference" on page 19](#).
- You must use the Create Function method rather than the Create Subroutine method to define a procedure that includes a return value. For more information, see ["Create Function Method" on page 102](#).

### Usage for the Static Keyword and Private Keyword

The Static keyword specifies that any variable you declare in this method retains a value as long as the code runs. This situation applies regardless of how you declare variables in this method.

The Private keyword specifies that other functions and subroutines in other modules cannot access the subroutine that you define with this method. Only procedures defined in the same module can access a private function.

### Specifying Arguments

Note the following:

- To specify multiple arguments, you can use a list of variable names where a comma separates each name.
- To specify the data type of an argument, you can use a type character or the As clause.
- To declare a record argument, you use the As clause and a value in the type argument. You must have already used the Type statement to define this value in the type argument.
- To declare an array argument, you can use empty parentheses after the argument. You do not specify array dimensions in the Create Subroutine method. You must use a consistent number of dimensions for every reference to an array argument that occurs in the body of the Create Subroutine code.

### Declaring Optional Arguments

If you declare an optional argument, then you can omit the value for this argument when Siebel VB calls the method that contains this argument. Note the following:

- You can only declare a variant argument as optional.
- Any optional arguments must occur after the required arguments in the Create Subroutine method.
- You can use the IsMissing method to determine if an optional argument is omitted. For more information, see ["Is Optional Argument Missing Method" on page 211](#). For more information on using named arguments, see ["Comments" on page 29](#) and ["Call Subroutine Method" on page 98](#).

### Example

The following example is a subroutine that uses the Create Subroutine method:

```
Sub Button1_Click
    'Hello, world.
End Sub
```

**Related Topics**

- ["Declare Variable Statement" on page 128](#)
- ["Create Function Method" on page 102](#)
- ["Declare Global Variable Statement" on page 129](#)
- ["Force Explicit Declaration Statement" on page 133](#)
- ["Declare Global Variable Statement" on page 129](#)

## Create Function Method

The Create Function method creates a function. It returns to the caller when it encounters an End Function statement or an Exit Function statement. It returns the value that the expression argument calculates.

**Format**

```
[Static] [Private] Function name([[Optional] ]argument
[As type]][, ...]) [As funcType]
    name = expression
End Function
```

The following table describes the arguments that you can use with this method.

Argument	Description
name	The name of the function.
argument	The argument to pass to the function when Siebel VB calls it. For more information, see <a href="#">"Specifying Arguments" on page 101</a> .
type	The data type of the argument.
funcType	The data type of the value that the function returns.

**Usage**

For information about the static and private keywords, see ["Usage for the Static Keyword and Private Keyword" on page 101](#).

A Visual Basic procedure passes values through reference. This means that if a procedure assigns a value to an argument, then it modifies the variable that the caller passes. You must use this feature with caution. For more information, see ["Pass Values Through Reference" on page 19](#).

For information about declaring optional arguments, see ["Declaring Optional Arguments" on page 101](#).

### Specifying the Type

Specifying the type character when you use the Create Function method is optional. A function can create and return a single value of a type that you specify. The data type of the value in the name argument determines the type of the return value. You can do one of the following to specify the data type:

- Use a type character as part of the name.
- Use the As funcType clause.

If you do not use one of these formats, then Siebel VB uses the default data type, which is variant.

### Specifying the Return Value

You use the following format to specify the return value for the function name:

```
name = expression
```

where:

- *name* is the name of the function
- *expression* evaluates to a return value

If you do not include this code, then Siebel VB returns one of the following values:

- 0 for a numeric function
- null string ("") for a string function
- An Empty variable type for a return type of variant. For more information, see ["Variants" on page 26](#).

You can use the Sub statement to define a procedure that does not include a return value.

### Caution About Writing a Custom Function or Subroutine

If you create more than one function or subroutine in the general declarations section, then you must make sure that any other custom function or subroutine that you create that calls this function or subroutine occurs before the procedure that calls it. Otherwise, you cannot compile your procedures.

**CAUTION:** You cannot create a custom function or custom subroutine in a method or event that displays in Siebel Tools. You can create a custom function or custom subroutine in the general declarations section in the script of a method. If your function or subroutine must be available throughout the code, then you can use a PreInvokeMethod method or an external DLL file to store them in a central location. For more information, see doc ID 476501.1 on My Oracle Support.

### Example

The following example declares a function that the subroutine calls. The function performs a calculation on the value sent to it. This calculation modifies the value of the variable:

```
(general) (declarations)
Option Explicit
Declare Function Calculate(i as Single) As Single
```

```

Function Calculate(i As Single)
    i = i * 3 + 2
    Calculate = i
End Function

Sub Button_Click
    Dim x as String
    Dim y As Single
    x = 34
    y = val(x)
    Call Calculate(y)
End Sub

```

For other examples, see [“Declare Procedure Method” on page 105](#), and [“Example 2” on page 119](#).

**Related Topics**

- [“Call Subroutine Method” on page 98](#)
- [“Create Subroutine Method” on page 100](#)
- [“Declare Variable Statement” on page 128](#)
- [“Declare Global Variable Statement” on page 129](#)
- [“Force Explicit Declaration Statement” on page 133](#)
- [“Is Optional Argument Missing Method” on page 211](#)

## Declare Custom Data Type Method

The Declare Custom Data Type method declares a custom data type. It does not return a value. For more information, see [“About Data Types” on page 22](#).

**Format**

```

Type userType
    field1 As type1
    field2 As type2
...
End Type

```

The following table describes the arguments that you can use with this method.

Argument	Description
userType	The name of the custom data type.
field1, field2	Each argument specifies the name of a field in the custom type.
type1, type2	Each argument specifies the data type of the field.

**Usage**

You can use the following format to access the fields of a record:

```
recordName.fieldName
```



You can use the following format to access the fields of an array of records:

```
arrayName(index).fieldName
```

You cannot specify an array in the field argument. Arrays of records are allowed.

You cannot use the Type statement in a procedure definition. You must use it in the general declarations section. For example, see ["Set Array Lower Boundary Method" on page 164](#).

Siebel VB cannot pass a custom type to a COM function or subroutine.

To declare a record variable, you can use the Declare Custom Data Type method in a Declare Variable method. Siebel VB does not allocate memory when you define a custom type. It only allocates memory if you use a Declare Variable method to declare a custom type. If you declare a variable of a custom type, then you are instantiating the type. For more information, see ["Declare Variable Statement" on page 128](#).

### Example

The following example includes a Type statement and a Dim statement. You must define a record type before you can declare a record variable. The subroutine references a field in the record:

```
Type Testrecord
    Custno As Integer
    Custname As String
End Type

Sub Button_Click
    Dim myrecord As Testrecord
    Dim msgText As String
i:
    myrecord.custncustomame = "Chris Smith"
    If myrecord.custname = "" then
        Exit Sub
    End If
End Sub
```

### Related Topics

["Set Variable Data Type Statement" on page 136](#)

["Declare Variable Statement" on page 128](#)

## Declare Procedure Method

The Declare Procedure method declares a procedure in a module or in a dynamic link library (DLL). The value it returns depends on one of the following formats that you use:

- **Format A.** It does not return a value.
- **Format B.** A value of the funcType type. You can use this value in an expression.

For more information about the format and arguments that you can use with this method, see ["Declaring a Procedure" on page 33](#).

**Format A**

Declare Sub *name* [(*argument* [As *type*])]

**Format B**

Declare Function *name* [(*argument* [As *type*])] [As *funcType*]

**Arguments**

The following table describes the arguments that you can use with this method.

Argument	Description
name	The name of the subroutine or function that this method declares.
argument	The argument that this method passes. A comma separates each argument.
type	The data type of the arguments.
funcType	The data type of the return value.

**Example**

The following example declares a function that the main subroutine subsequently calls. This function only sets the return value to 1:

```
(general) (declarations)
Option Explicit
Declare Function SVB_exfunction()

Function SVB_exfunction()
    SVB_exfunction = 1
End Function

Sub Button_Click
    Dim y as Integer
    Call SVB_exfunction
    y = SVB_exfunction
End Sub
```

For other examples of functions, see ["Create Function Method" on page 102](#) and ["Go To Statement" on page 118](#).

**Related Topics**

- ["Create Function Method" on page 102](#)
- ["Declare Symbolic Constant Method" on page 107](#)
- ["Declare Variable Statement" on page 128](#)
- ["Declare Global Variable Statement" on page 129](#)
- ["Set Variable Data Type Statement" on page 136](#)

## Declare Symbolic Constant Method

The Declare Symbolic Constant method declares a symbolic constant. It does not return a value.

### Format

```
[Global] Const constantName [As type] = expression [, constantName [As type] = expression] ...
```

The following table describes the arguments that you can use with this method.

Argument	Description
constantName	The variable name to contain a constant value.
type	The data type of the constant. This type is Number or String.
expression	Any expression that evaluates to a constant number.

### Usage

To specify the type of the constant, you can use one of the following characters as a suffix of the constantName argument:

- **# (pound sign)**. Specifies a number.
- **\$ (dollar sign)**. Specifies a string.

You can use this technique instead of using the As clause.

If you do not specify a type character, then the Declare Symbolic Constant method derives the type of the value that you specify in the constantName argument from the type of the expression.

To specify a global constant, you must declare it in the general declarations section of the module where you must access this global variable.

### Example

For an example, see [“Convert Expression to Long Method” on page 225](#).

## Get Environment Setting Method

The Get Environment Setting method returns the string setting that is assigned to an environment variable for a keyword in the environment table of the operating system. If it cannot find the value that you specify, then it returns a null string.

### Format A

```
Environ[$](environment-string)
```

The return value for format A is the string that is associated with the keyword.

For information about the dollar sign, see [“Usage of the Dollar Sign” on page 56](#).

**Format B**

`Environ[$] (numeric_expression)`

The return value for format B is a string that uses the following format:

*KEYWORD=value*

**Arguments**

The following table describes the arguments that you can use with this method.

Argument	Description
environment-string	The name of a keyword in the operating system. You must enter the value for this argument in uppercase. If you do not, then this method returns a null string ("").
numeric_expression	An integer for the position of the string in the environment table. For example, 1st, 2nd, 3rd, and so on. This method rounds the numeric expression to a whole number, if necessary.

**Example**

The following example lists the strings from the operating system environment table:

```

Sub Button_Click
  Dim str1(100)
  Dim msgtext
  Dim count, x
  Dim newline
  newline = Chr(10)
  x = 1
  str1(x) = Environ(x)
  Do While Environ(x) <> ""
    str1(x) = Environ(x)
    x = x + 1
    str1(x) = Environ(x)
  Loop
  msgtext = "The Environment Strings are:" & newline & newline
  count = x
  For x = 1 to count
    msgtext = msgtext & str1(x) & newline
  Next x
End Sub

```

**Remove Object Method**

You can use the Remove Object method to remove from memory an object that Siebel VB instantiates in memory. If an object variable does not reference an object, then it contains a value of Nothing. The Remove Object method does not return a value.

**Format**

Set *objectName* = Nothing

The following table describes the arguments that you can use with this method.

Argument	Description
objectName	The name of the object variable to set to Nothing.

For example:

```
If Not objectVar Is Nothing then
    objectVar.Close
Set objectVar = Nothing
End If
```

**Example**

The following example adds an activity record when the user adds a contact record in a Siebel application. It presumes that the Contact business component is the parent business component. It instantiates the Action business component, and then uses the Remove Object method to remove this instance from memory after it finishes processing the business component data:

```
Sub BusComp_WriteRecord

    Dim oBCact as BusComp
    Set oBCact = theApplication.ActiveBusObject.GetBusComp("Action")

    With oBCact
        .NewRecord NewAfter
        .SetFieldValue "Type", "Event"
        .SetFieldValue "Description", "ADDED THRU SVB"
        .SetFieldValue "Done", Format(Now(),"mm/dd/yyyy hh:mm:ss")
        .SetFieldValue "Status", "Done"
        .WriteRecord
    End With

    set oBCact = Nothing
End Sub
```

For other examples that use the Remove Object method, see ["Date and Time Methods" on page 179](#) and ["Get COM Object Method" on page 233](#).

**Send Keystrokes Method**

The Send Keystrokes method sends keystrokes to an active Microsoft Windows application. It does not return a value. It can send a keystroke only to the currently active application. You can use the AppActivate statement to activate an application. You cannot use this method to send keys to an application that does not run in Microsoft Windows.

**Format**

`SendKeys string[, wait]`

The following table describes the arguments that you can use with this method.

Argument	Description
string	A string or string expression that contains the characters to send. Each character in the string argument represents a keystroke.
wait	Specifies to wait until Siebel VB processes every key before it continues to the next code line. It can include one of the following values: <ul style="list-style-type: none"> <li>■ <b>-1</b>. Wait.</li> <li>■ <b>0</b>. Do not wait. This is the default value.</li> </ul>

**Specifying Alphanumeric Characters**

To specify an alphanumeric character, you enter it in the string argument. For example, to send the character a, you use a as the value in the string argument. You can combine multiple characters in one string. For example, if the string argument contains abc, then Siebel VB sends the following values to the application:

a, b, and c

**Specifying Control Keys**

To specify that the user must press the SHIFT, ALT, or CTRL key simultaneously with a character, you prefix the character with one of the following values:

- **+**. Specifies SHIFT.
- **%**. Specifies ALT.
- **^**. Specifies CTRL.

You can use parentheses to specify that the user must press the SHIFT, ALT, or CTRL key with a group of characters. For example, %(abc) is equivalent to %a%b%c.

**Control Keys That the Send Keystrokes Method Interprets**

The following table describes some keys that the Send Keystrokes method interprets. To specify one of these characters as a literal value, you must enclose the character in curly brackets ({}).

Key	Description
+	SHIFT key.
%	ALT key.
^	CTRL key.
( )	Apply a shift state to the characters that the parentheses enclose.

Key	Description
~	Newline. Note the following: <ul style="list-style-type: none"> <li>■ <b>Tilde (~)</b>. Represents the ENTER key on an alphanumeric keypad.</li> <li>■ <b>{Enter}</b>. Represents the ENTER key on a numeric keypad.</li> </ul>
{ }	Makes the enclosed characters literals.
[ ]	Square brackets do not possess a special meaning for the Send Keystrokes method, but they might possess a special meaning for other applications.

For example, if the string argument contains {%}, then the Send Keystrokes method sends the literal value of the percentage symbol (%).

You can use the following format to send a bracket:

- **Left bracket.** You use {{}}.
- **Right bracket.** You use {}}.

### Repeating the Same Key

To send the same key multiple times, you can enclose the character in curly brackets ({}), add a space, and then specify the number of keys to send. For example, the following code sends 20 X characters:

```
{X 20}
```

### Sending Nonprintable Keys

The following table describes how you can to send a nonprintable key. You can use a special keyword and enclose it in curly brackets ({}).

Nonprintable Key	Format
BACKSPACE	{BACKSPACE} or {BKSP} or {BS}
BREAK	{BREAK}
CAPS LOCK	{CAPSLOCK}
CLEAR	{CLEAR}
DELETE	{DELETE} or {DEL}
DOWN ARROW	{DOWN}
END	{END}
ENTER (on numeric keypad)	{ENTER}
ESC	{ESCAPE} or {ESC}
HELP	{HELP}
HOME	{HOME}

Nonprintable Key	Format
INSERT	{INSERT}
LEFT ARROW	{LEFT}
NUM LOCK	{NUMLOCK}
PAGE DOWN	{PGDN}
PAGE UP	{PGUP}
RIGHT ARROW	{RIGHT}
SCROLL LOCK	{SCROLLLOCK}
TAB	{TAB}
UP ARROW	{UP}
Function key (F1 through F15)	You enclose the name of the function key in curly brackets ({}). For example, to send F5, you use the following format:  {F5}

### Combining Keywords

You can use the following characters to combine some keywords:

- Plus sign (+)
- Percentage symbol (%)
- Caret (^)

For example, %`{TAB}` is ALT+TAB.

You can send multiple keywords. For example, the following code sends 25 up arrows:

```
{UP 25}
```

### Example

The following example starts the Microsoft Windows Phone Dialer application and dials a phone number that the user enters:

```
Sub Button_Click
    Dim phonenumber, msgtext
    Dim x
    phonenumber = 650-555-1212
    x = Shell ("Terminal.exe",-1)
    Sendkeys "%N" & phonenumber & "{Enter}", -1
End Sub
```

### Related Topics

["Call Application Method" on page 97](#)



## Use Clipboard Methods

The Use Clipboard methods are standard Visual Basic methods that allow you to use the Microsoft Windows clipboard as an object. They do not return a value. You can use the Microsoft Windows Clipboard to transfer text to and from other applications that support this clipboard.

### Format

```
Clipboard.Clear
Clipboard.GetText()
Clipboard.SetText string
Clipboard.GetFormat()
```

The following table describes the arguments that you can use with these methods.

Argument	Description
string	A string or string expression that contains the text to send to the clipboard.

The following table describes the statements that you can use the clipboard.

The following table describes the arguments that you can use with these methods.

Statement	Description
Clear	Clears the contents of the clipboard.
GetText	Returns a text string from the clipboard.
SetText	Puts a text string in the clipboard.
GetFormat	Returns one of the following values: <ul style="list-style-type: none"> <li>■ <b>Not zero.</b> The format of the item on the clipboard is text.</li> <li>■ <b>Zero (0).</b> The format of the item on the clipboard is not text.</li> </ul>

If code or if a cut or copy operation places data that is of the same format as the data that currently resides in the clipboard, then the current data on the clipboard is lost.

### Example

The following example places the following text string on the clipboard:

```
Hello, world:

Sub Button_Click
  Dim mytext as String
  mytext = "Hello, world."
  Clipboard.SetText mytext
End Sub
```

## Code Control Statements

This topic describes statements that you can use to control the flow of Siebel VB code. It includes the following topics:

- "Do Loop Statement" on page 114
- "Exit Statement" on page 115
- "For Next Statement" on page 116
- "Go To Statement" on page 118
- "If Then Else Statement" on page 119
- "Go To Label Statement" on page 120
- "Me Statement" on page 121
- "Rem Statement" on page 122
- "Select Case Statement" on page 123
- "Stop Statement" on page 124
- "While Wend Statement" on page 125

### Do Loop Statement

The Do Loop statement is a control structure that repeats a series of code lines as long as an expression is TRUE. It does not return a value.

If an Exit Do statement runs, then control flows to the statement that resides immediately after the Loop statement. If you use an Exit Do statement in a nested loop, then it moves control out of the immediate loop.

#### Format A

```
Do [{ while|until } condition]
statement_block
  [Exit Do]
  statement_block
Loop
```

#### Format B

```
Do
statement_block
  [Exit Do]
  statement_block
Loop [{ while|until } condition]
```

## Arguments

The following table describes the arguments that you can use with this method.

Argument	Description
condition	Any expression that evaluates to TRUE (not zero) or FALSE (0).
statement_block	Code lines to repeat while or until the value you specify in the condition argument is TRUE (not zero).

## Example

For examples, see ["Get File Names Method" on page 71](#), ["Erase Array Method" on page 162](#), and ["Get Error Code Method" on page 236](#).

## Exit Statement

The Exit statement is a control structure that stops statements that reside in a loop or transfers control to a calling procedure. It does not return a value.

You can include an Exit Do statement in a Do Loop statement. You can use an Exit For statement in a For Next statement. When the Exit statement runs, control transfers to the statement that occurs after the Loop statement or the Next statement. When used in a nested loop, an Exit statement moves control out of the immediately enclosing loop.

Note the following:

- You can use the Exit statement in the Create Function method. For more information, see ["Create Function Method" on page 102](#).
- You can use the Exit Sub statement in the Create Subroutine method. For more information, see ["Create Subroutine Method" on page 100](#).

## Format

Exit {Do | For | Function | Sub}

## Example

The following example uses the On Error statement to handle run-time errors. If an error exists, then the code continues at the Debugger label. This example uses the Exit statement to skip the debugging code when no error exists:

```

Sub Button_Click
    Dim msgtext, userfile
    On Error GoTo Debugger
    msgtext = "Enter the filename to use:"
    userfile = "c:\temp\trace.txt"
    Open userfile For Input As #1
    ' ....etc....
    Close #1
done:

```

```

Exit Sub
Debugger:
  msgtext = "Error " & Err & ": " & Error$
  Resume done
End Sub

```

## For Next Statement

The For Next statement is a control structure that repeats a series of code lines a fixed number of times. It does not return a value.

### Format

For *counter* = *start* To *end* [Step *increment*]

*statement\_block*

[Exit For]

*statement\_block*

Next [*counter*]

The following table describes the arguments that you can use with this method.

Argument	Description
counter	A numeric variable for the loop counter.
start	The initial value of the counter.
end	The ending value of the counter.
increment	The amount by which Siebel VB modifies the counter each time the loop runs. The default value is 1.
statement_block	The Visual Basic functions, statements, or methods to run.

### How Siebel VB Handles a For Next Statement

Siebel VB compares the sign of start and the sign of end to the sign of increment, and then does one of the following:

- If the signs are the same, and if end does not equal start, then it starts the For Next loop.
- If the signs are not the same, then it skips the loop entirely.

Siebel VB does the following when it runs a For Next loop:

- 1 Runs the code lines that occur after the For statement until it encounters the Next statement.
- 2 Adds the Step amount to the counter.
- 3 Compares the value in the counter argument to the value in the end argument.
- 4 Does one of the following:

- **If the beginning and ending values are the same.** It runs the loop one time, regardless of the Step value.
- **If the beginning and ending values are not same.** It uses the Step value to control the loop as follows:

Step Value	Description
Positive	<p>Siebel VB does one of the following, depending on the value of the counter:</p> <ul style="list-style-type: none"> <li>■ <b>The counter is less than or equal to the value in the end argument.</b> It adds the Step value to counter. Control returns to the statement after the For statement and the process repeats.</li> <li>■ <b>The counter is greater than the value in the end argument.</b> It exits the loop, and then resumes running code with the statement that occurs immediately after the Next statement.</li> </ul>
Negative	Siebel VB repeats the loop until the counter is less than the value in the end argument.
Zero	Siebel VB repeats the loop indefinitely.

**Usage**

The values in the start argument and the end argument must be consistent with the value in the increment argument:

- If end is greater than start, then increment must be positive.
- If end is less than start, then increment must be negative.

You must not modify the value of the counter while the loop runs. Changing this value makes the code more difficult to maintain and debug.

You can use the Exit For statement as an alternative exit from a For Next loop.

**Nesting a For Next Loop**

You can nest a For Next loop in another For Next loop:

- You must specify a unique variable name for the counter in each nested loop.
- You must make sure the Next statement of the inner loop occurs before the Next statement of the outer loop.

To merge Next statements that are multiple and consecutive, you must make sure the innermost counter occurs first and the outermost counter occurs last. For example:

```

For i = 1 To 10
  statement_block
  For j = 1 To 5
    statement_block
  Next j, i

```

If you do not include the variable in a Next statement, then this Next statement matches the most recent For statement. If a Next statement occurs prior to the corresponding For statement for this Next statement, then Siebel VB returns an error message.

**Example**

For an example, see [“Convert Expression to Single-Precision Method” on page 226](#).

## Go To Statement

The Go To statement is a control structure that directs flow to a label. It does not return a value. The value of the label argument uses the same format as any other Visual Basic name. A reserved word is not a valid label. You cannot use a Go To statement to transfer control out of the current function or subroutine. It is recommended that you avoid using a Go To statement. For more information, see [“Example 2” on page 119](#).

**Format**

GoTo *label*

The following table describes the arguments that you can use with this method.

Argument	Description
label	A name that begins in the first column of a line of code and ends in a colon (:).

**Example 1**

The following example displays the date for one week from the date that the user enters. If the date is not valid, then the Go To statement directs flow to the beginning of the start statement:

```

Sub Button_Click
    Dim str1 as String
    Dim nextweek
    Dim msgtext
start:
    str1 = "5/20/2001"
    answer = IsDate(str1)
    If answer = -1 then
        str1 = CDate(str1)
        nextweek = DateValue(str1) + 7
        msgtext = "One week from the date entered is "
        msgtext = msgtext & Format(nextweek,"dddddd")
    Else
        GoTo start
    End If
End Sub

```

**Example 2**

It is recommended that you avoid using a Go To statement. When possible, you must use another technique. For example, ["Example 1" on page 118](#) could use an If statement that occurs in a separate function that the main code calls. If the test fails, then Siebel VB can call the initial code again. For example:

```
(general) (declarations)
Option Explicit
' Variables must be declared in this section so that they
' can be used by both procedures.
Dim str1 As String, nextweek, MsgText As String
Declare Function CheckResponse(Answer) As String

Function CheckResponse(Answer) As String
    str1 = CDate(str1)
    nextweek = DateValue(str1) + 7
    CheckResponse = "One week from the date entered is " & _
        Format(nextweek, "ddddd")
End Function

Sub Button1_Click
    Dim Answer as String
    str1 = "2/5/2001"
    Answer = IsDate(str1)
    If Answer <> -1 Then
        'Invalid date or format. Try again.
        Button1_Click
    Else
        Answer = CheckResponse(Answer)
    End If
End Sub
```

**If Then Else Statement**

The If Then Else statement is a control structure that runs a block of code according to one or more expressions. It does not return a value.

**Format A**

```
If condition Then then_statement [Else else_statement]
```

**Format B**

```
If condition Then
    statement_block
    [ElseIf expression Then
        statement_block ]...
    [Else
        statement_block ]
End If
```

If you require multiple statements in the Then clause or in the Else clause, then you must use Format B.

**Arguments**

The following table describes the arguments that you can use with this method.

Argument	Description
condition	Any expression that evaluates to TRUE (not zero) or FALSE (zero).
then_statement	Any valid single expression.
else_statement	Any valid single expression.
expression	Any expression that evaluates to TRUE (not zero) or FALSE (zero).
statement_block	Zero or valid expressions where a colon (:) or a different code line separates each expression.

**Example**

The following example examines the time and the day of the week and returns a message:

```

Sub Button_Click
  Dim h, m, m2, w
  h = hour(now)
  If h > 18 then
    m = "Good evening, "
  ElseIf h >12 then
    m = "Good afternoon, "
  Else
    m = "Good morning, "
  End If
  w = weekday(now)
  If w = 1 or w = 7
    Then m2 = "the office is closed."
    Else m2 = "please hold for company operator."
  End If
End Sub

```

**Go To Label Statement**

The Go To Label statement is a control structure that directs flow to a label in the current procedure according to the value of a numeric expression. It does not return a value.

If the value in the number argument evaluates to:

- Zero or to a number that is greater than the number of labels that occur after the Go To Label statement, then Siebel VB runs the code at the next statement.
- Less than 0 or greater than 255, then Siebel VB creates the following error:

```
Illegal function call
```



**Format**

On *number* GoTo *label1*[, *label2*, ... ]

The following table describes the arguments that you can use with this method.

Argument	Description
number	Any numeric expression that evaluates to a positive number.
label1, label2, ...	A label in the current procedure. Siebel VB directs flow to this procedure.

**Me Statement**

The Me statement is standard Visual Basic shorthand that refers to the currently used object. It does not return a value. A Siebel VB module can be attached to an application object. If this application object encounters a some events, then Siebel VB might call a subroutine. For example, if the user clicks a button, then the Me statement runs Visual Basic code or a statement calls a method on an application object.

A subroutine in this situation can use the Me variable to reference the object that starts the event. For example, the button click. You can use the Me statement the same way that you use any other object variable except that you can use the Assign COM Object statement to set Me.

**Format A**

```
with Me
    .methodname() statement
End with
```

**Format B**

```
Me.methodname() statement
```

**Arguments**

The following table describes the arguments that you can use with this method.

Argument	Description
methodname	The name of the method that Siebel VB uses with the object.
statement	The statement argument includes one of the following items: <ul style="list-style-type: none"> <li>■ The code that Siebel VB runs</li> <li>■ The arguments to the method</li> </ul>

**Example**

For an example, see ["Modify Variable Statement" on page 132](#).

**Related Topics**

["Date and Time Methods" on page 179](#)  
["Get COM Object Method" on page 233](#)  
["Initialize COM Object Method" on page 235](#)  
["Remove Object Method" on page 108](#)  
["COM Object Class" on page 230](#)  
["Is Object Of Class Method" on page 211](#)

## Rem Statement

The Rem statement identifies a line of code as a comment in Visual Basic code. It does not return a value. A code line that begins with a single quote (') also identifies a comment.

**Format**

Rem *comment*

**Example**

The following example code is attached to a button on the Account Form applet that counts the number of corresponding child contact records:

```

Sub Button1_Click

    Dim i as Integer
    Dim icount as Integer
    Dim oBC as BusComp

    Rem Test this from the Account Contacts View
    Rem This code presumes that Account is the parent BusComp
    Rem BusObject returns the business object
    Rem associated with a control or applet.

    Rem GetBusComp here returns a reference
    Rem to the BC that is in the UI context.

    set oBC = me.BusObject.GetBusComp("Contact")

    Rem FirstRecord positions you at the
    Rem first record in the business component.
    Rem FirstRecord, NextRecord, and so forth, do not return Booleans.
    Rem Siebel VB does not have a Boolean data type.

    i = oBC.FirstRecord Rem Returns 0 if fails, 1 if succeeds
    if i <> 1 then

else
    icount = 0
    Rem This is a sample of using a while statement to loop.
    Rem NextRecord returns 1 if it successfully
    Rem moved to the next record in the BC

```

```

while i = 1
    icount = icount + 1
    i = oBC.NextRecord    Rem Returns 1 if successful
wend
oBC.FirstRecord
end if

End Sub

```

## Select Case Statement

The Select Case statement is a control structure that runs one or more statements, depending on the value of an expression. It does not return a value.

### Format

```

Select Case testexpression
    Case expressionList
        [statement_block]
    [Case expressionList
        [statement_block] ]
    .
    .
    [Case Else
        [statement_block]
End Select

```

The following table describes the arguments that you can use with this method.

Argument	Description
testexpression	Any expression that contains a variable.
expressionList	One or more expressions that contain a possible value for the testexpression argument.
statement_block	One or more lines of code to run if the value in the testexpression argument equals a value in the expressionList argument.

### Usage

If the value in the testexpression argument is equal to the value in the expressionList argument, then Siebel VB runs the statement\_block that occurs immediately after the Case clause. When Siebel VB encounters the next Case clause, the code flows to the statement that occurs immediately after the End Select statement.

The expressionList can include a list of expressions. A comma separates each expression in this list. It can include one of the following forms:

```

expression

expression To expression

```

*Is* *comparison\_operator* expression

The type of each expression must be compatible with the type of the testexpression.

Each statement\_block can contain any number of statements on any number of lines.

### Using the Is Keyword

If you use the To keyword to specify a range of values, then the smaller value must occur first. The comparison\_operator that you use with the Is keyword must contain one of the following:

- < (less than)
- > (greater than)
- = (equal)
- < = (less than or equal)
- > = (great than or equal)
- <> (not equal)

If the Case is one end of a range, then you must use the Is operator. For example:

```
Case Is < 100
```

## Stop Statement

The Stop statement is a control structure that stops code from running. It does not return a value. It does not include arguments. You can include a Stop statement anywhere in Siebel VB code. A Stop statement does not close files or clear variables.

### Format

```
Stop
```

### Example

The following example stops code from running when the user clicks a button:

```
Sub Button_Click
  Dim str1
  str1 = Y
  If str1 = "Y" or str1 = "y" then
    Stop
  End If
End Sub
```

## While Wend Statement

The While Wend statement is a control structure that controls a repetitive action. It does not return a value. Siebel VB includes the While statement so that it is compatible with older versions of Visual Basic. If possible, it is recommended that you use the Do Loop statement instead. For more information, see ["Do Loop Statement" on page 114](#).

### Format

```
while condition
    statement_block
wend
```

The following table describes the arguments that you can use with this method.

Argument	Description
condition	A condition where Siebel VB runs the statements in a <code>statement_block</code> .
statement_block	A series of statements that Siebel VB runs while the value in the condition argument is TRUE.

### Example

The following example opens a series of files and looks for the following string in each file:

```
*Overdue*
```

This example uses the While Wend statement to loop through the `c:\temp00?` files. The `CreateFiles` subroutine creates these files:

```
(general) (declarations)
Option Explicit
Declare Sub CreateFiles

Sub CreateFiles
    Dim odue as String
    Dim ontime as String
    Dim x
    Open "c:\temp001" for OUTPUT as #1
    odue = "*Overdue*"
    ontime = "*On-Time*"
    For x = 1 to 3
        Write #1, odue
    Next x

    For x = 4 to 6
        Write #1, ontime
    Next x
    Close #1
    Open "c:\temp002" for Output as #1
    write #1, odue
    Close #1
End Sub
```

```

Sub Button_Click
  Dim custfile as String
  Dim aline as String
  Dim pattern as String
  Dim count as Integer
  Call CreateFiles
  Chdir "c:\"
  custfile = Dir$("temp00?")
  pattern = "*" + "Overdue" + "*"
  While custfile <> ""
    Open custfile for input as #1
    On Error goto atEOF
    Do
      Line Input #1, aline
      If aline Like pattern Then
        count = count + 1
      End If
    Loop
  ntxtfile:
    On Error GoTo 0
    Close #1
    custfile = Dir$
  wend
  Kill "c:\temp001"
  Kill "c:\temp002"
  Exit Sub
atEOF:
  Resume ntxtfile
End Sub

```

## Variable Manipulation Methods

This topic describes statements and methods that setup and control variables. It includes the following topics:

- ["Assign Expression to Variable Statement" on page 127](#)
- ["Declare Variable Statement" on page 128](#)
- ["Declare Global Variable Statement" on page 129](#)
- ["Declare Static Variable Statement" on page 132](#)
- ["Modify Variable Statement" on page 132](#)
- ["Force Explicit Declaration Statement" on page 133](#)
- ["Get Variant Type Method" on page 134](#)
- ["Set Variable Data Type Statement" on page 136](#)
- ["Set Variant Variable to Null Method" on page 137](#)

## Assign Expression to Variable Statement

The Assign Expression to Variable statement is a predefined VB statement that assigns an expression to a Visual Basic variable. It does not return a value. You can use it to assign a value or expression to a variable that is of one of the following data types:

- Numeric
- String
- Variant
- Record

If you use this statement to assign a value to a numeric variable or to a string variable, then Siebel VB applies the standard conversion rules.

You can use this statement to assign a value to a field in a record or to assign a value to an element in an array.

The Let keyword is optional. Let is different from Set because Set assigns a variable to a COM object. For example:

- **Set o1 = o2.** Sets the object reference.
- **Let o1 = o2.** Sets the value of the default member.

### Format

[Let] *variable = expression*

The following table describes the arguments that you can use with this method.

Argument	Description
variable	The variable where Siebel VB assigns a value.
expression	The expression that contains the value that Siebel VB assigns.

### Example

The following example uses the Assign Expression to Variable statement for the sum variable. It calculates an average of 10 golf scores:

```
Sub Button_Click
  Dim score As Integer
  Dim x, sum
  Dim msgtext
  Let sum = 34
  For x = 1 to 10
    score = 76
    sum = sum + score
  Next x
  msgtext = "Your average is: " & CInt(sum/(x-1))
End Sub
```

**Related Topics**

["Declare Symbolic Constant Method" on page 107](#)

## Declare Variable Statement

The Declare Variable statement declares a variable. It does not return a value. For more information about the format and arguments you can use this statement, see ["Declaring Variables" on page 35](#).

*Dim* is an abbreviation for Declare in Memory. You must begin the value in the VariableName argument with a letter. It must contain only letters, numbers, and underscores. You can use square brackets to separate a name. You can use any character between the square brackets except for more square brackets. For example:

```
Dim my_1st_variable As String
Dim [one long and strange! variable name] As String
```

**Format**

```
Dim [Shared] variableName [As[ New] type] [, variableName [As[ New] type]] ...
```

The following table describes the arguments that you can use with this method.

Argument	Description
variableName	The name of the variable to declare.
type	The data type of the variable.

**Example**

The following example includes a Dim statement for each of the possible data types:

```
' Must define a record type before you can declare a record
' variable
  Type Testrecord
    Custno As Integer
    Custname As String
  End Type

Sub Button_Click
  Dim counter As Integer
  Dim fixedstring As String * 25
  Dim varstring As String
  Dim myrecord As Testrecord
  Dim ole2var As Object
  Dim F(1 to 10), A()
  '...(code here)...
End Sub
```



**Related Topics**["Create Function Method" on page 102](#)["Declare Array Method" on page 160](#)["Set Array Lower Boundary Method" on page 164](#)

## Declare Global Variable Statement

The Declare Global Variable statement declares a global variable. It does not return a value. You must declare a global variable in every module from which Siebel VB must access that variable. You declare a global variable in the general declarations section of the module.

**Format**

```
Global variableName [As type] [, variableName [As type]] ...
```

The following table describes the arguments that you can use with this method.

Argument	Description
<i>variableName</i>	The variable name.
<i>type</i>	The data type of the variable.

**Usage**

If you do not include the As clause, then you can add a type character as a suffix to the *variableName* argument. You can simultaneously use the two different type specification methods in a single Global statement, but you cannot use these methods simultaneously on the same variable.

Regardless of how you declare a global variable, you can choose to include or not include the type character when you reference the variable from another section of code. Siebel VB does not consider the type suffix as part of the variable name.

**Formats That You Can Use to Specify the Type of a Global Variable**

Visual Basic is a strongly typed language. You must assign a data type to a variable or Siebel VB assigns a type of variant.

Table 24 describes the data types you can use to specify the type of a global variable. Declaring a global variable is the same as declaring a variable, except where noted in the Format column in Table 24. The Reference column includes a link to the description for declaring a variable.

Table 24. Formats That You Can Use to Specify the Type of a Global Variable

Type	Format	Reference
Array	<p>You use the following format to declare a global record:</p> <pre>Global variable([ subscriptRange, ... ]) [As typeName]</pre> <p>where:</p> <ul style="list-style-type: none"> <li>■ <i>subscriptRange</i> uses the following format: [startSubscript To] endSubscript</li> </ul>	<a href="#">"Declaring an Array Variable" on page 36</a>
Number	Not applicable.	<a href="#">"Declaring a Number Variable" on page 37</a>
Record	<p>You use the following format to declare a global record:</p> <pre>Global variableName As typeName</pre> <p>You cannot use the Declare Global Variable statement to declare a dialog record.</p>	<a href="#">"Declaring a Record Variable" on page 37</a>
String	<p>You use the following format to declare a global string:</p> <pre>Global variableName As String * length</pre> <p>You use one of the following formats to declare a dynamic string:</p> <pre>Global variableName\$</pre> <pre>Global variableName As String</pre>	<a href="#">"Declaring a String Variable" on page 37</a>
Variant	<p>You use one of the following formats to declare a global variant:</p> <pre>Global variableName</pre> <pre>Global variableName As Variant</pre>	<a href="#">"Declaring a Variant Variable" on page 38</a>

**Example**

The following example includes two subroutines that share the total and acctno variables, and the grecord record:

```

(general)(declarations)
Option Explicit
Type acctrecord
    acctno As Integer
End Type

Global acctno as Integer
Global total as Integer
Global grecord as acctrecord
Declare Sub CreateFile

Sub CreateFile
    Dim x
    x = 1
    grecord.acctno = 2345
    Open "c:\temp001" For Output as #1
    Do While grecord.acctno <> 0
        grecord.acctno = 0
        If grecord.acctno <> 0 then
            Print #1, grecord.acctno
            x = x + 1
        End If
    Loop
    total = x-1
    Close #1
End Sub

Sub Button_Click
    Dim msgtext
    Dim newline as String
    newline = Chr$(10)
    Call CreateFile
    Open "c:\temp001" For Input as #1
    msgtext = "The new account numbers are: " & newline
    For x = 1 to total
        Input #1, grecord.acctno
        msgtext = msgtext & newline & grecord.acctno
    Next x
    Close #1
    Kill "c:\temp001"
End Sub

```

**Related Topics**

- ["Create Function Method" on page 102](#)
- ["Declare Symbolic Constant Method" on page 107](#)
- ["Declare Array Method" on page 160](#)
- ["Set Array Lower Boundary Method" on page 164](#)

## Declare Static Variable Statement

The Declare Static Variable statement declares a variable and allocates storage space for this variable. It does not return a value.

A variable that you declare with the Static statement retains a value as long as the code runs. The format you use is exactly the same as the format you use with the Declare Variable statement. For more information, see ["Declare Variable Statement" on page 128](#).

To make a procedure variable static, you can use the Static keyword in the definition of this procedure. For more information, see ["Create Function Method" on page 102](#) and ["Create Subroutine Method" on page 100](#).

### Format

Static *variableName* [As type] [,*variableName* [As type]] ...

The following table describes the arguments that you can use with this method.

Argument	Description
<i>variableName</i>	The name of the variable to declare as static.
<i>type</i>	The data type of the variable. If you do not include the type argument, then Siebel VB uses the variant type.

### Related Topics

["Declare Array Method" on page 160](#)

["Set Array Lower Boundary Method" on page 164](#)

## Modify Variable Statement

The Modify Variable statement runs a series of statements on a variable. It does not return a value. The value you specify in the variable argument can be an object or a custom type. You can nest With statements.

### Format

```
with variable
    statement_block
End with
```

The following table describes the arguments that you can use with this method.

Argument	Description
<i>variable</i>	The variable that Siebel VB modifies in the <i>statement_block</i> .
<i>statement_block</i>	The statements that Siebel VB runs on the variable.

**Example**

The following example uses a Siebel VB method to modify the values that an object contains if Siebel CRM modifies a field value. The Modify Variable statement references this object:

```

sub BusComp_SetFieldValue(Fieldname As String)

  Select Case FieldName
    Case "Account Status"
      If Me.GetFieldValue(FieldName) = "Inactive" Then
        Dim oBCact as BusComp
        Dim sMessage as String
        Set oBCact = me.BusObject.GetBusComp("Action")
        sMessage = "ADDED THRU SVB: Account Status made Inactive"

        With oBCact
          .NewRecord NewAfter
          .SetFieldValue "Type", "Event"
          .SetFieldValue "Description", sMessage
          .SetFieldValue "Done", _
            Format(Now(),"mm/dd/yyyy hh:mm:ss")
          .SetFieldValue "Status", "Done"
          .WriteRecord
        End With

        set oBCact = Nothing
      End If
    End Select

End Sub

```

For another example, see ["Remove Object Method" on page 108](#).

**Force Explicit Declaration Statement**

The Force Explicit Declaration statement forces you to explicitly declare every variable in a module. It does not return a value.

**Format**

```
Option Explicit
```

**Usage**

Visual Basic declares any variables that does not occur in one of the following statements, by default:

- Dim
- Global
- ReDim
- Static

If you include the Force Explicit Declaration statement in your code, then Siebel VB creates the following error every time it encounters a variable that is not declared:

```
Variable Not Declared
```

Using the Force Explicit Declaration statement makes debugging code easier because it forces you to declare each variable before you use it. It is recommended that you declare variables at the beginning of the project, module, or procedure where these variables possess scope. Declaring variables in this way simplifies locating their definitions when reading through code.

You must include the Force Explicit Declaration statement in the general declarations section. For more information, see ["Set Array Lower Boundary Method" on page 164](#).

### Example

The following example specifies that variables must be explicitly declared. This technique prevents mistyped variable names:

```
Option Explicit
Sub Button_Click
    Dim counter As Integer
    Dim fixedstring As String * 25
    Dim varstring As String
    '...(code here)...
End Sub
```

### Related Topics

- ["Create Subroutine Method" on page 100](#)
- ["Create Function Method" on page 102](#)
- ["Declare Symbolic Constant Method" on page 107](#)
- ["Declare Array Method" on page 160](#)

## Get Variant Type Method

The Get Variant Type method returns a number that represents the type of data stored in a variant variable. For more information, see ["Variants" on page 26](#).

### Format

VarType(*varName*)

The following table describes the arguments that you can use with this method.

Argument	Description
varName	The name of a variant variable.

### Example

The following example returns the variant type of the myarray variant variable:

```

Sub Button_Click
  Dim x
  Dim myarray(8)
  Dim retval
  Dim retstr
  myarray(1) = Null
  myarray(2) = 0
  myarray(3) = 39000
  myarray(4) = CSng(10^20)
  myarray(5) = 10^300
  myarray(6) = CCur(10.25)
  myarray(7) = Now
  myarray(8) = "Five"
  For x = 0 to 8
    retval = Vartype(myarray(x))
    Select Case retval
      Case 0
        retstr = " (Empty)"
      Case 1
        retstr = " (Null)"
      Case 2
        retstr = " (Integer)"
      Case 3
        retstr = " (Long)"
      Case 4
        retstr = " (Single)"
      Case 5
        retstr = " (Double)"
      Case 6
        retstr = " (Currency)"
      Case 7
        retstr = " (Date)"
      Case 8
        retstr = " (String)"
    End Select
    If retval = 1 then
      myarray(x) = "[null]"
    ElseIf retval = 0 then
      myarray(x) = "[empty]"
    End If
  Next x
End Sub

```

**Related Topics**

["Is Expression a Date Method" on page 210](#)

["Is Variable Null Method" on page 212](#)

["Is Variable Numeric Method" on page 213](#)

["Is Variable Set Method" on page 214](#)

## Set Variable Data Type Statement

The Set Variable Data Type statement sets the default data type for one or more variables.

### Format

```
DefCur varTypeLetters
DefInt varTypeLetters
DefLng varTypeLetters
DefSng varTypeLetters
DefDb1 varTypeLetters
DefStr varTypeLetters
DefVar varTypeLetters
```

The following table describes the arguments that you can use with this method.

Argument	Description
varTypeLetter	The first letter of a variable name.

### Usage

The VarTypeLetters argument can be one of the following:

- Single letter
- List of letters that includes a comma to separate each letter
- Range of letters

For example, if you specify a-d, then Siebel VB uses letters a, b, c, and d.

The case of the letters is not important, even in a letter range. Siebel VB considers the a-z letter range as all alpha characters, including international characters.

The Deftype statement affects only the code where you specify it. It must precede any variable definition in the code.

To override the Deftype statement, you can use the Global statement or the Declare Variable statement to declare a variable, and then use an As clause or a type character.

For more information, see [“Variants” on page 26](#).

### Example

The following example determines the average of bowling scores that the user enters. Because the average variable begins with A, this example defines it as a single-precision, floating point number. It defines the other variables as integers:

```
DefInt c,s,t
DefSng a
Sub Button_Click
  Dim count
  Dim total
  Dim score
```



```

Dim average
Dim msgtext
For count = 0 to 4
    score = 180
    total = total + score
Next count
average = total/count
msgtext = "Your average is: " &average
End Sub

```

### Related Topics

["Create Function Method" on page 102](#)

["Declare Procedure Method" on page 105](#)

## Set Variant Variable to Null Method

The Set Variant Variable to Null method sets a variant variable to a value of Null. It returns a variant that is set to NULL. Note that Visual Basic sets a variant to the empty value, which is different from the Null value.

### Format

```
variableName = Null
```

The Set Variant Variable to Null method does not include arguments.

### Example

The following example calculates the average of ten test score values. If any score is negative, then it sets this value to Null. Before this example calculates the average, the IsNull statement reduces the total count of scores to only those scores that are positive values:

```

Sub Button_Click
    Dim arrayvar(10)
    Dim count as Integer
    Dim total as Integer
    Dim x as Integer
    Dim tscore as Single
    count = 10
    total = 0
    For x = 1 to count
        tscore = 88
        If tscore < 0 then
            arrayvar(x) = Null
        Else
            arrayvar(x) = tscore
            total = total + arrayvar(x)
        End If
    Next x
    Do While x <> 0

```

```
x = x - 1
If IsNull(arrayvar(x)) = -1 then
    count = count - 1
End If
Loop
msgtext = " The average (excluding negative values) is: "
msgtext = msgtext & Chr(10) & Format (total/count, "##.##")
End Sub
```

### Related Topics

["Is Variable Null Method" on page 212](#)

["Is Variable Set Method" on page 214](#)

["Get Variant Type Method" on page 134](#)

## String Methods

This topic describes string methods. It includes the following topics:

- ["Compare Strings Method" on page 139](#)
- ["Compare Strings Operator" on page 140](#)
- ["Convert Number to String Method" on page 141](#)
- ["Convert String to Lowercase Method" on page 142](#)
- ["Convert String to Uppercase Method" on page 143](#)
- ["Copy String Method" on page 143](#)
- ["Get a String of Spaces Method" on page 144](#)
- ["Get ANSI String Method" on page 145](#)
- ["Get First Number From String Method" on page 146](#)
- ["Get Left String Method" on page 147](#)
- ["Get Repeated Character String Method" on page 147](#)
- ["Get Right String Method" on page 148](#)
- ["Get String Length Method" on page 149](#)
- ["Get Substring Method" on page 150](#)
- ["Get Substring Position Method" on page 151](#)
- ["Remove Spaces From String Method" on page 153](#)
- ["Replace String Method" on page 154](#)
- ["Right-Justify String Method" on page 155](#)
- ["Set String Comparison Method" on page 156](#)
- ["Set String Format Method" on page 157](#)

- ["Trim Spaces From String Method" on page 159](#)
- ["Trim Trailing Spaces From String Method" on page 159](#)

## Compare Strings Method

The Compare Strings method compares two strings. It returns one of the following integers. This integer describes the result of the comparison:

- **-1 (negative one)**. string1 is less than string2.
- **0 (zero)**. string1 equals string2.
- **>1 (greater than one)**. string1 is greater than string2.
- **Null**. string1 equals Null or string2 equals Null.

This method passes the values in the string1 argument and string2 argument as a variant. It supports any type of expression. It automatically converts a number to a string.

### Format

StrComp(*string1*, *string2*[, *compare*])

The following table describes the arguments that you can use with this method.

Argument	Description
string1	An expression that contains the first string to compare.
string2	An expression that contains the second string to compare.
compare	<p>An integer that specifies if the comparison is case-sensitive. You use one of the following values:</p> <ul style="list-style-type: none"> <li><b>0</b>. Case-sensitive. It performs a case-sensitive comparison according to the ANSI character set sequence.</li> <li><b>1</b>. Not case-sensitive. It performs a comparison that is not case-sensitive according to the relative order of characters. The country code setting for your computer determines this order.</li> </ul> <p>If you do not include the compare argument, then this method uses the module-level default. The Set String Comparison method sets this default. For more information, see <a href="#">"Set String Comparison Method" on page 156</a>.</p>

### Example

The following example compares a custom string to the Smith string:

```
Option Compare Text
Sub Button_Click
    Dim lastname as String
    Dim smith as String
```

```

Dim x as Integer
smith = "Smith"
lastname = "smith"
x = StrComp(lastname,smith,1)
If x = 0 then
    'You typed Smith or smith
End If
End Sub

```

## Compare Strings Operator

The Compare Strings operator is a standard Visual Basic operator that compares the contents of two strings. It returns one of the following values:

- **-1 (TRUE)**. The string does match the pattern.
- **0 (FALSE)**. The string does not match the pattern.

If the string argument or if the pattern argument is NULL, then it returns NULL.

The Compare Strings operator performs a comparison according to the current configuration of the Set String Comparison method. For more information, see ["Set String Comparison Method" on page 156](#).

For more information about operators, see ["About Expressions" on page 29](#).

### Format

*string* LIKE *pattern*

The following table describes the arguments that you can use with this method.

Argument	Description
string	Any string or string expression.
pattern	Any string expression to compare to the value of the string argument.

### Usage

The following table describes characters that you can use in the pattern argument.

Character	Character That the Compare Strings Operator Compares
?	A single character.
*	A set of zero or more characters.
#	A single digit character in the range of 0 through 9.
[chars]	A single character in <i>chars</i> .
[!chars]	A single character not in <i>chars</i> .

Character	Character That the Compare Strings Operator Compares
[startchar–endchar]	A single character in the range <i>startchar</i> through <i>endchar</i> .
[!startchar–endchar]	A single character not in the range <i>startchar</i> through <i>endchar</i> .

A range or list can occur in a single set of square brackets. The Compare Strings operator matches ranges according to their ANSI values. In a range, the value in *startchar* must be less than the value in *endchar*.

### Example

The following example determines if a letter is lowercase:

```

Sub Button_Click
    Dim userstr as String
    Dim revalue as Integer
    Dim msgtext as String
    Dim pattern
    pattern = "[a-z]"
    userstr = "E"
    revalue = userstr LIKE pattern
    If revalue = -1 then
        msgtext = "The letter " & userstr & " is lowercase."
    Else
        msgtext = "Not a lowercase letter."
    End If
End Sub

```

## Convert Number to String Method

The Convert Number to String method converts a number to a string. It returns a string representation of this number. It uses the following precision in the returned string:

- Single-precision for an integer or for a single-precision numeric expression.
- Double-precision for a long number or for a double-precision numeric expression.
- Currency precision for currency.
- A variant returns the precision of the underlying variable type. For more information, see [“Variants” on page 26](#).

### Format

Str[\$](*number*)

For information about the dollar sign, see [“Usage of the Dollar Sign” on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
number	The number that this method converts to a string.

**Example**

The following example prompts the user to enter two numbers. It adds these numbers, and then displays them as a concatenated string:

```

Sub Button_Click
    Dim x as Integer
    Dim y as Integer
    Dim str1 as String
    Dim value1 as Integer
    x = 1
    y = 2
    str1 = "The sum of these numbers is: " & x+y
    str1 = Str(x) & Str(y)
End Sub
    
```

## Convert String to Lowercase Method

The Convert String to Lowercase method converts the contents of a string to lowercase, and then returns a lowercase copy of that string. It substitutes characters according to the country specified in the Microsoft Windows Control Panel. It accepts expressions of type string. It accepts any type of argument and converts the input value to a string.

If you must configure Siebel VB to compare text values but not case, then you can use the Convert String to Lowercase method and the Convert String to Uppercase method. For more information, see ["Convert String to Uppercase Method" on page 143](#).

**Format**

LCase[\$](*string*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
string	A string or an expression that contains a string. If this value is NULL, then this method returns a Null variant. For more information, see <a href="#">"Variants" on page 26</a> .

**Example**

The following example converts to lowercase a string that the user enters:

```

Sub Button_Click
    Dim userstr as String
    userstr = "This Is A Test"
    userstr = LCase$(userstr)
End Sub

```

## Convert String to Uppercase Method

The Convert String to Uppercase method converts lowercase letters to uppercase letters. It returns a copy of this string. Note the following:

- The conversion occurs according to the country specified in the Microsoft Windows Control Panel.
- It accepts any type of argument and converts the input value to a string.
- If the value that the string argument contains is NULL, then this method returns a Null variant. For more information, see ["Variants" on page 26](#).

### Format

UCase[\$](*string*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
string	A string or string expression.

### Example

The following example converts a file name that the user enters to uppercase letters:

```

Option Base 1
Sub Button_Click
    Dim filename as String
    filename = "c:\temp\trace.txt"
    filename = UCase(filename)
End Sub

```

## Copy String Method

The Copy String method copies one string to another string or assigns a custom variable to another variable. It does not return a value. It copies values differently depending on the following:

- **The value in the string argument is shorter than the value in the string-expression argument.** It copies the leftmost characters that the string-expression contains to the string that the string argument identifies. The number of characters it copies is equal to the length of the string argument.

- **The value in the string argument is longer than the value in the string-expression argument.** It copies every character in the string-expression argument to the string that the string argument identifies, filling it from left to right. It replaces any leftover characters in the string argument with spaces.

You cannot use the Copy String method to assign variables of different custom types if one of these variables contains a variant or a variable-length string.

**Format A**

*Lset string = string-expression*

**Format B**

*Lset variable1 = variable2*

If you use format B, then the number of characters that this method copies is equal to the length of the shorter of variable1 and variable2.

**Arguments**

The following table describes the arguments that you can use with this method.

Argument	Description
string	A string variable or string expression to contain the copied characters.
string-expression	A string variable or string expression that contains the string that this method copies.
variable1	A variable in a custom type to contain the copied variable.
variable2	A variable that contains a custom type to be copied.

**Example**

The following example places a user last name into a variable. If the name is longer than the size of lastname, then it truncates the user name:

```
Sub Button_Click
    Dim lastname as String
    Dim strlast as String * 8
    lastname = "Smith"
    Lset strlast = lastname
    msgtext = "Your last name is: " & strlast
End Sub
```

## Get a String of Spaces Method

The Get a String of Spaces method returns a string of spaces.



**Format**Space[\$] (*number*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
number	A numeric expression that specifies the number of spaces to return. This number can be any numeric data type, but this method rounds the number to an integer. This number must reside in the range of 0 through 32,767.

**Example**

For an example, see ["Get Octal Method" on page 174](#).

## Get ANSI String Method

The Get ANSI String method returns the character string that corresponds to the ANSI code of the character that the charCode argument contains.

**Format**chr[\$] (*charCode*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
charCode	An integer in the range of 0 through 255 that identifies the ANSI code for a character.

**Example**

The following example displays the character equivalent for an ASCII code in the range of 65 through 122:

```

sub Button_Click
  Dim numb as Integer
  Dim msgtext as String
  Dim out as Integer
  out = 0
  Do Until out
    numb = 75
    If Chr$(numb) >= "A" AND Chr$(numb) <= "Z" _
      OR Chr$(numb) >= "a" AND Chr$(numb) <= "z" then
      msgtext = "The letter for the number " & numb _
        & " is: " & Chr$(numb)
    End If
    out = out + 1
  Loop
end sub

```

```

        out = 1
    ElseIf numb = 0 then
        Exit Sub
    Else
        msgtext = "Does not convert to a character; try again."
    End If
Loop
End Sub

```

## Get First Number From String Method

The Get First Number From String method returns the numeric value of the first number that it finds in a string. If it finds no number, then it returns 0 (zero). It ignores any spaces that exist in the string.

### Format

`val(string)`

The following table describes the arguments that you can use with this method.

Argument	Description
string	A string or string expression that contains a number.

### Example

The following example examines the value of the profit variable. If profit contains a negative number, then it displays 0 (zero). The Sgn statement determines if profit is positive, negative, or zero:

```

Sub Button_Click
    Dim profit as Single
    Dim expenses
    Dim sales
    expenses = 100000
    sales = 20000
    profit = Val(sales)-Val(expenses)
    If Sgn(profit) = 1 then
        'Yeah! we turned a profit!
    ElseIf Sgn(profit) = 0 then
        'Okay. we broke even.
    Else
        'Uh, oh. we lost money.
    End If
End Sub

```

## Get Left String Method

The Get Left String method returns a string copied from the beginning of another string. If the value in the length argument is greater than the length of the string that the string argument specifies, then it returns the entire string.

### Format

Left[\$](*string*, *length*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
string	<p>A string or an expression that contains a string. This method returns a substring of the string that you specify. The substring begins at the first character of this string.</p> <p>If this argument contains a NULL value, then this method returns a Null variant. For more information, see <a href="#">"Variants" on page 26</a>.</p> <p>This method accepts any type of string, including numeric values, and converts the input value to a string.</p>
length	An integer that specifies the number of characters to copy.

### Example

The following example gets a user first name from the entire name:

```

Sub Button_Click
    Dim username as String
    Dim count as Integer
    Dim firstname as String
    Dim charspace
    charspace = Chr(32)
    username = "Chris Smith"
    count = InStr(username,charspace)
    firstname = Left(username,count)
End Sub

```

## Get Repeated Character String Method

The Get Repeated Character String method creates a string that consists of a repeated character. It returns this string.

### Format A

string[\$](*number*, *character*)

**Format B**

String[\$] (*number, stringExpression*)

For information about the dollar sign, see ["Usage of the Dollar Sign"](#) on page 56.

**Arguments**

The following table describes the arguments that you can use with this method.

Argument	Description
number	The length of the string that this method returns. This number must reside in the range of 0 through 32,767.
character	An integer or integer expression that contains the ANSI code of the character that this method uses. This argument must evaluate to an integer in the range of 0 through 255.
stringExpression	A string argument. This method uses the first character of this argument as the repeated character.

**Example**

The following example places asterisks (\*) in front of a string that it prints as a payment amount:

```

Sub Button_Click
    Dim str1 as String
    Dim size as Integer
i: str1 = 666655.23
    If Instr(str1,".") = 0 then
        str1 = str1 + ".00"
    End If
    If Len(str1)>10 then
        Goto i
    End If
    size = 10-Len(str1)
    'Print amount in a space on a check allotted for 10 characters
    str1 = String(size,Asc("*")) & str1
End Sub
    
```

**Get Right String Method**

The Get Right String method returns a portion of a string beginning at the end of the string. Note the following:

- It accepts any type of string, including numeric values, and converts the input value to a string.
- If the value that the string argument contains is NULL, then it returns a Null variant. For more information, see ["Variants"](#) on page 26.
- If the value in the length argument is greater than the length of the string, then it returns the entire string.

**Format**

Right[\$](*string*, *length*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
string	A string or string expression that contains the characters to copy.
length	The number of characters to copy, beginning at the right-most position of the string and counting toward the left.

**Example**

The following example searches for the BMP extension in a file name that the user enters. If it does not find the file, then it activates the Paintbrush application. It uses the Option Compare Text statement to accept uppercase or lowercase letters for the file name extension. For more information, see ["Set String Comparison Method" on page 156](#):

```
Option Compare Text
Sub Button_Click
    Dim filename as String
    Dim x
    filename = "d:\temp\picture.BMP"
    extension = Right(filename,3)
    If extension = "BMP" then
        x = Shell("PBRUSH.EXE",1)
        Sendkeys "%FO" & filename & "{Enter}", 1
    Else
        End If
End Sub
```

**Get String Length Method**

The Get String Length method gets the length of one of the following:

- The string that the string argument contains
- The string in the variable that the varName argument identifies

**Format A**

Len(*string*)

**Format B**

Len(*varName*)

### Arguments

The following table describes the arguments that you can use with this method.

Argument	Description
string	Includes a string or an expression that evaluates to a string. If you use the string argument, then this method returns the number of characters that the string contains.
varName	Identifies a variable that contains a string. If the varName argument: <ul style="list-style-type: none"> <li>■ <b>Identifies a variant variable.</b> This method returns as a string the number of bytes required to identify the value of this variable.</li> <li>■ <b>Identifies a variant variable that contains NULL.</b> This method returns a Null variant.</li> <li>■ <b>Does not identify a variant variable.</b> This method returns the length of the predefined data type or the custom type.</li> </ul>

### Example

The following example returns the length of a name that the user enters, including spaces:

```
Sub Button_Click
    Dim username as String
    username = "Chris Smith"
    count = Len(username)
End Sub
```

## Get Substring Method

The Get Substring method returns a portion of a string, starting at a location in the string that you specify. It allows you to get a substring from a string. It accepts any type of string, including numeric values, and converts the input value to a string. To modify a portion of a string, see ["Replace String Method" on page 154](#).

### Format

Mid[\$](*string*, *start*[, *length*])

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
string	A string or string expression that contains the string that this method copies. If this value is NULL, then this method returns a Null variant.  Mid\$ requires the string argument to be of type string or variant. For more information, see <a href="#">"Variants" on page 26</a> .
start	An integer that identifies the starting position in the string argument to begin copying characters. The position of the first character in a string is 1.  If the number in the start argument is larger than the number of positions that the string contains, then this method returns a null string ("").
length	An integer that specifies the number of characters to copy.

### Example

The following example returns the last name in a string that the user enters:

```

Sub Button_Click
  Dim username as String
  Dim position as Integer
  username = "Chris Smith"
  Do
    position = InStr(username," ")
    If position = 0 then
      Exit Do
    End If
    position = position + 1
    username = Mid(username,position)
  Loop
End Sub

```

## Get Substring Position Method

The Get Substring Position method returns the position of the first occurrence of a substring that resides in another string. It can also return the following values:

- Returns a zero in the following situations:
  - The value in the start argument is greater than the length of the value in the string2 argument.
  - The string1 argument contains a null string.
  - The string2 argument is not found.
- If the string1 argument or the string2 argument contains a null variant, then it returns a null variant.
- If the string2 argument contains a null string (""), then it returns the value of the start argument.

**Format A**

InStr([start,] string1, string2)

**Format B**

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

**Arguments**

Arguments can be of any type. This method converts them to strings.

The following table describes the arguments that you can use with this method.

Argument	Description
start	An integer that identifies a position in the string that the string1 argument identifies. This position is the starting position, with the first character in the string as 1.  If you do not specify a value for the start argument, then this method starts at the beginning of the string.
string1	The string that includes the substring.
string2	The substring.
compare	You can use one of the following values: <ul style="list-style-type: none"> <li>■ <b>0.</b> Perform a search that is case-sensitive according to the ANSI character set sequence.</li> <li>■ <b>1.</b> Perform a search that is not case-sensitive according to the relative order of characters as determined by the country code setting for your computer.</li> </ul> If you do not include the compare argument, then this method uses the module level default that the Set String Comparison method sets. For more information, see <a href="#">"Set String Comparison Method" on page 156</a> .

**Example**

The following example creates a random string of characters, and then uses the Get Substring Position method to find the position of a single character in that string:

```
Sub Button_Click
    Dim x as Integer
    Dim y
    Dim str1 as String
    Dim str2 as String
    Dim letter as String
    Dim randomvalue
    Dim upper, lower
    Dim position as Integer
    Dim msgtext, newline
    upper = Asc("z")
    lower = Asc("a")
```



```

newline = Chr(10)
Randomize
For x = 1 to 26
    randomvalue = Int(((upper - (lower + 1)) * Rnd) + lower)
    letter = Chr(randomvalue)
    str1 = str1 & letter
'Need to waste time here for fast processors
    For y = 1 to 1000
        Next y
    Next x
    str2 = "i"
    position = InStr(str1,str2)
    If position then
        msgtext = "The position of " & str2 & " is: " _
            & position & newline & "in string: " & str1
    Else
        msgtext = "The letter: " & str2 & " was not found in: " _
            & newline
        msgtext = msgtext & str1
    End If
End Sub

```

## Remove Spaces From String Method

The Remove Spaces From String method removes leading spaces from a string. It returns a copy of this string with the leading spaces removed. It accepts any type of string, including numeric values, and converts the input value to a string.

If the value that the string argument contains is NULL, then this method returns a Null variant. For more information, see [“Variants” on page 26](#).

### Format

LTrim[\$](*string*)

For information about the dollar sign, see [“Usage of the Dollar Sign” on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
string	A string or string expression that contains the string that this method trims.

### Example

The following example removes the leading spaces from a string:

```

Sub Button_Click
    Dim userInput as String
    Dim numsize
    Dim str1 as String * 50
    Dim strsize

```

```

strsize = 50
userinput = "abdcGFTRes"
numsize = Len(userinput)
str1 = Space(strsize-numsize) & userinput
' Str1 has a variable number of leading spaces.
str1 = LTrim$(str1)
' Str1 now has no leading spaces.
End Sub

```

## Replace String Method

The Replace String method replaces part or all of one string with another string. It returns the string that the stringVar argument contains.

### Format

Mid (*stringVar*, *start*[, *length*]) = *string*

The following table describes the arguments that you can use with this method.

Argument	Description
stringVar	The string that this method modifies.
start	An integer that identifies the position in stringVar at which to begin replacing characters. The position of the first character in a string is 1.
length	An integer that identifies the number of characters to replace.
string	The string that this method places into <i>stringVar</i> .

### Usage

This method replaces characters starting at the start position to the end of the string in the following situations:

- You do not include the length argument.
- The string that the string argument contains is shorter than the value that the length argument contains.

This method does the following:

- If the start value is larger than the number of characters in stringVar, then it appends the string that the string argument contains to stringVar.
- If length plus start is greater than the length of stringVar, then it replaces characters only up to the end of stringVar.
- If the value in the start argument is greater than the number of characters that exist in stringVar, then it creates an error at runtime.

The Replace String method never modifies the number of characters in the stringVar argument.

**Example**

The following example replaces the last name in a custom string with asterisks (\*):

```

Sub Button_Click
  Dim username as String
  Dim position as Integer
  Dim count as Integer
  Dim uname as String
  Dim replacement as String
  username = "Chris Smith"
  uname = username
  replacement = "*"
  Do
    position = InStr(username," ")
    If position = 0 then
      Exit Do
    End If
    username = Mid(username,position + 1)
    count = count + position
  Loop
  For x = 1 to Len(username)
    count = count + 1
    Mid(uname,count) = replacement
  Next x
End Sub

```

**Right-Justify String Method**

The Right-Justify String method right-justifies one string in another string. It does not return a value. It justifies a string in the following ways:

- **Value in the string argument is longer than string-expression.** It replaces the leftmost characters of the string with spaces.
- **Value in the string argument is shorter than string-expression.** It copies only the leftmost characters of string-expression.

You cannot use it to assign variables of different custom types.

**Format**

Rset *string* = *string-expression*

The following table describes the arguments that you can use with this method.

Argument	Description
string	The string that receives the right-aligned characters.
string-expression	The string that this method puts into the string that the string argument contains.

**Example**

The following example right-justifies an amount that the user enters in a field that is 15 characters long. It then pads the extra spaces with asterisks (\*) and adds a dollar sign (\$) and decimal places, if necessary:

```

Sub Button_Click

    Dim amount as String * 15
    Dim x as Integer
    Dim msgtext as String
    Dim replacement as String
    Dim position as Integer

    replacement = "*"
    amount = 234.56
    position = InStr(amount, ".")
    If position = 0 then
        amount = Rtrim(amount) & ".00"
    End If
    Rset amount = "$" & Rtrim(amount)
    length = 15-Len(Ltrim(amount))
    For x = 1 to length
        Mid(amount,x) = replacement
    Next x
End Sub

```

**Set String Comparison Method**

The Set String Comparison method specifies the default method for string comparisons to case-sensitive or not case-sensitive. It does not return a value. You must include this method in the general declarations section. Note the following:

- A binary comparison is case-sensitive. It compares strings according to the ANSI character set. A lowercase letter is different from an uppercase letter.
- A text comparison is not case-sensitive. It compares strings according to the relative order of characters. The country code setting for your computer determines this order.

**Format**

```
Option Compare {Binary | Text}
```

This statement does not include arguments.

**Example**

The following example compares the following strings:

- Jane Smith
- jane smith

If Set String Comparison is Text, then these strings are the same. If Set String Comparison is Binary, then these strings are not the same. Binary is the default value. To examine this difference, you can run the example, comment out the Set String Comparison method, and then run it again:

```
Option Compare Text
Sub Button_Click
    Dim strg1 as String
    Dim strg2 as String
    Dim retvalue as Integer
    strg1 = "JANE SMITH"
    strg2 = "jane smith"
i:
    retvalue = StrComp(strg1,strg2)
    If retvalue = 0 then
        'The strings are identical
    Else
        'The strings are not identical
    Exit Sub
    End If
End Sub
```

## Set String Format Method

The Set String Format method returns an expression in a format that you specify. For details about how to use this method, see ["About Formatting Strings" on page 39](#).

### Format

Format[\$](*expression*[, *format*])

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
expression	<p>The value that this method formats. This argument can contain one of the following items:</p> <ul style="list-style-type: none"> <li>■ Number</li> <li>■ String</li> <li>■ Variant</li> </ul> <p>This method formats the value you enter as a number, date, time, or string depending on the format argument. To format a string, it transfers one character at a time from the value you enter in the expression argument to the output string.</p>
format	A string expression that identifies the format that this method uses. You must use quotation marks (") to enclose the value in the format argument.

### Usage

The Set String Format method formats a numeric value as a number or date and time. If you specify a numeric expression, and if you do not include the format argument, or if the format argument is null, then this method converts the number to a string without any special formatting.

It can format a numeric value or a variant as a date. If it formats a numeric value as a date, then it interprets the value according to standard Visual Basic date encoding. The starting date is December 30, 1899. It represents this date as zero. It represents subsequent dates as the number of days from the starting date.

If the format string does not match the Regional Settings, or if the Date in the Microsoft Windows setting is not set to the U.S. format, then the Set String Format method does not return the correct format.

### Example 1

The following example includes tokens:

```
Sub Button1_Click
    Dim msgtext As String
    msgtext = Format("Section #AB-234", "<[#####\]") _
    & Chr$(13) & Chr$(13) & Format("incoming", ">#####\!\!") _
    & Chr$(13) & Chr$(13) _
    & Format("Profits are expected to rise.", _
    "!#####")
End Sub
```

### Example 2

The following example calculates the square root of 2 as a double-precision, floating point value, and then displays it in scientific notation:

```
Sub Button1_Click
    Dim value As Double
    Dim msgtext As String
    value = Cdbl(Sqr(2))
    msgtext = "The square root of 2 is " & Format(value, "Scientific")
End Sub
```

### Example 3

The following example uses multiple tokens to format the result of the Now method, which returns the current date and time on the computer clock:

```
Sub ClickMe_Click
    dim msgtext As String
    msgtext = Now & Chr$(13) & Chr$(13) _
    & "Today is " & Format(Now, "dddd") & ", " _
    & Format(Now, "mmm") & " " & Format(Now, "dd") & ", " _
    & Format(Now, "yyyy") & "." _
    & Chr$(13) & "The time is " & Format(Now, "h:nn am/pm") _
    & " and " & Format(Now, "s") & " seconds."
End Sub
```

For other examples, see the following topics:

- ["Convert Expression to Currency Method" on page 223](#)
- ["Calculate Future Value Method" on page 217](#)
- ["Go To Statement" on page 118](#)

## Trim Spaces From String Method

The Trim Spaces From String method removes leading and trailing spaces from a string. It returns a copy of this string with the leading and trailing spaces removed. Note the following:

- It accepts expressions of type string.
- It accepts any type of string, including numeric values, and converts the input value to a string.
- If the value that the string argument contains is NULL, then this method returns a Null variant. For more information, see ["Variants" on page 26](#).

### Format

Trim[\$](*string*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
string	A literal or expression from which this method removes leading and trailing spaces.

### Example

For an example, see ["Get Substring Method" on page 150](#).

## Trim Trailing Spaces From String Method

The Trim Trailing Spaces From String method copies a string, and then removes any trailing spaces that exist in that copy. It returns a string with all trailing spaces removed. Note the following:

- It accepts any type of string, including numeric values, and converts the input value to a string.
- If the value that the string argument contains is NULL, then it returns a Null variant. For more information, see ["Variants" on page 26](#).

### Format

RTrim[\$](*string*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
string	A string or string expression.

**Example**

For an example, see ["Right-Justify String Method" on page 155](#).

## Array Methods

This topic describes array methods. It includes the following topics:

- ["Declare Array Method" on page 160](#)
- ["Erase Array Method" on page 162](#)
- ["Get Array Lower Boundary Method" on page 163](#)
- ["Get Array Upper Boundary Method" on page 164](#)
- ["Set Array Lower Boundary Method" on page 164](#)

For more information, see ["Arrays" on page 23](#).

## Declare Array Method

The Declare Array method allocates memory for a dynamic array to the dimensions that you specify. It does not return a value. You typically use the Dim statement to declare a dynamic array without specifying a size for it.

**Format**

ReDim [Preserve] *arrayName* (*lower* To *upper*) [As [New] *type*], ...

The following table describes the arguments that you can use with this method.

Argument	Description
arrayName	The name of the array to redimension.
lower	The lower boundary of the array. If you do not specify this argument, then Siebel VB uses 0 as the default value of the lower boundary. You can use the Set Array Lower Boundary method to modify this default value.
upper	The upper boundary of the array.
type	The data type of the array elements.



## Usage

Note the following:

- You can use the ReDim statement to declare an array in a procedure that has not previously been declared using the Dim statement or the Global statement. In this situation, you can declare no more than 60 dimensions.
- As an option, you can use the Declare Array method to reset array elements.
- You cannot use the Declare Array method at the module level. You must use it in a procedure.
- The Preserve option modifies the last dimension in the array while maintaining the contents of the array. If you do not specify the Preserve option, then Siebel VB resets the contents of the array. It sets numbers to zero (0). It sets strings and variants to null ("").
- If you do not include the As clause, then to specify the variable type, you can use a type character as a name suffix. You can use this clause and suffix in a single Declare Array method. You cannot use this clause and suffix on the same variable.
- You must not redimension an array in a procedure that has received a reference to an element in the array in an argument. The result of this configuration is not predictable.
- A dynamic array that you create with the Dim statement can include no more than eight dimensions. If you require more than eight dimensions, then you must use the Declare Array method. For information about declaring a dynamic array, see ["Dynamic Arrays" on page 24](#).

## Example

The following example determines the net present value for a series of cash flows. The array variable that holds the cash flow amounts is initially a dynamic array that this example redimensions after the user enters the number of cash flow periods:

```

Sub Button_Click
    Dim aprate as Single
    Dim varray() as Double
    Dim cflowper as Integer
    Dim x as Integer
    Dim netpv as Double
    Dim msgtext as string
    cflowper = 2
    ReDim varray(cflowper)
    For x = 1 to cflowper
        varray(x) = 4583
    Next x
    msgtext = "Enter discount rate:"
    aprate = 3.25
    If aprate > 1 then
        aprate = aprate / 100
    End If
    netpv = NPV(aprate,varray())
    msgtext = "The Net Present Value is: " (netpv, "Currency")
End Sub

```

**Related Topics**

- ["Declare Variable Statement" on page 128](#)
- ["Declare Global Variable Statement" on page 129](#)

## Erase Array Method

The Erase Array method erases the contents of a fixed array or frees the storage associated with a dynamic array. It does not return a value. The following table describes how it erases the contents of different element types.

Element Type	Description
Numeric	Sets each element to zero.
Variable-length string	Sets each element to a zero-length string ("").
Fixed-length string	Fills the string of each element with zeros.
Variant	Sets each element to Empty.
Custom type	Clears each member of each element as if each member is an array element. For example, it sets numeric members to zero, strings to "", and so on.
Object	Sets each element to the following value:  Nothing

**Format**

Erase *Array*[, *Array*]

The following table describes the arguments that you can use with this method.

Argument	Description
Array	The name of the array to erase.

**Example**

The following example prompts the user for a list of item numbers to put into an array. If the user must start over, then it clears the array. For information about the Dim statement, see ["Declare Variable Statement" on page 128](#):

```

Sub Button_Click
    Dim msgtext
    Dim inum(100) as Integer
    Dim x, count
    Dim newline
    newline = Chr(10)
    x = 1
    count = x

```

```

inum(x) = 0
Do
    inum(x) = x + 1
    If inum(x) = 99 then
        Erase inum()
        x = 0
    ElseIf inum(x) = 0 then
        Exit Do
    End If
    x = x + 1
Loop
count = x-1
msgtext = "You entered the following numbers:" & newline
For x = 1 to count
    TheApplication.TraceOn "c:\temp\trace.txt", "Allocation", "All"
    TheApplication.Trace msgtext & inum(x) & newline
Next x
End Sub

```

## Get Array Lower Boundary Method

The Get Array Lower Boundary method returns the lowest index number of the dimension that the dimension argument identifies. The numbering for each dimension of an array starts at 1. If you do not include the dimension argument, then it uses 1 as the default.

You can use the Get Array Lower Boundary method with the Get Array Upper Boundary method to determine the length of an array.

### Format

`LBound(arrayname [, dimension] )`

The following table describes the arguments that you can use with this method.

Argument	Description
arrayname	The name of the array to query.
dimension	The dimension to query.

### Example

The following example resizes an array if the user enters more data than this array can hold. It uses the LBound statement and the UBound statement to determine the existing size of the array. It uses the ReDim statement to resize the array. The Option Base statement sets the default lower boundary of the array to 1:

```

Option Base 1

Sub Button_Click
    Dim arrayvar() as Integer
    Dim count as Integer

```

```

Dim answer as String
Dim x, y as Integer
Dim total
total = 0
x = 1
count = 4
ReDim arrayvar(count)
start:
Do until x = count + 1
  arrayvar(x) = 98
  x = x + 1
Loop
x = LBound(arrayvar,1)
count = UBound(arrayvar,1)
For y = x to count
  total = total + arrayvar(y)
Next y
End Sub

```

## Get Array Upper Boundary Method

The Get Array Upper Boundary method returns the upper boundary an array. You can use the Get Array Lower Boundary method with the Get Array Upper Boundary method to determine the length of an array.

The minimum value for the lower boundary of an array is 0. The maximum value for the upper boundary of an array is 65,536.

### Format

`UBound(arrayName[, dimension])`

The following table describes the arguments that you can use with this method.

Argument	Description
arrayName	The name of the array to query.
dimension	The array dimension whose upper boundary this method returns. If you do not include this argument, then Siebel VB uses 1 as the default value.

### Example

For an example, see [Get Array Lower Boundary Method on page 163](#).

## Set Array Lower Boundary Method

The Set Array Lower Boundary method specifies the default lower boundary to use for an array. It does not return a value. Note the following:

- You can use this method to set the lower boundary before you use any array in your code. If you do not use this method, then Siebel VB uses 0 as the default value for the lower boundary.
- You can use this method only one time for each module.
- You cannot use this method in a procedure.
- You must include this method in the general declarations section. For example:

```
Option Explicit
Option Base 1
Option Compare Text
```

**Format**

Option Base *lowerBound*

The following table describes the arguments that you can use with this method.

Argument	Description
lowerBound	The value 0 or 1 or an expression that evaluates to one of these values.

**Example**

For an example, see [Get Array Lower Boundary Method on page 163](#).

## Mathematical Methods

This topic describes mathematical methods. It includes the following topics:

- ["Exponential Method" on page 167](#)
- ["Get Absolute Value Method" on page 168](#)
- ["Get ANSI Integer Method" on page 168](#)
- ["Get Arctangent Method" on page 169](#)
- ["Get Cosine Method" on page 170](#)
- ["Get Hexadecimal Method" on page 170](#)
- ["Get Integer Method" on page 171](#)
- ["Get Rounded Integer Method" on page 172](#)
- ["Get Logarithm Method" on page 173](#)
- ["Get Octal Method" on page 174](#)
- ["Get Number Sign Method" on page 175](#)
- ["Get Random Number Method" on page 175](#)
- ["Get Sine Method" on page 176](#)
- ["Get Square Root Method" on page 177](#)

- [“Get Tangent Method” on page 177](#)
- [“Randomize Method” on page 178](#)

## Overview of Mathematical Methods

This topic describes an overview of mathematical methods.

### How Some Math Methods Handle the Data Type

Some math methods provide a different return value depending on the following data types of the variable that contains the return value:

- **Integer or currency.** The return value is a single-precision number.
- **A single-precision value.** The return value is a single-precision number.
- **Long or variant.** The return value is a double-precision value.
- **A double-precision value.** The return value is a double-precision value.

These methods are noted in this chapter, where appropriate.

### Trigonometric Methods

[Table 25](#) lists the trigonometric methods that are available in Siebel VB.

Table 25. Trigonometric Methods

Method	Computation
ArcCoSecant	$ArcCoSec(x) = Atn(x/Sqr(x*x-1)) + (Sgn(x)-1)*1.5708$
ArcCosine	$ArcCos(x) = Atn(-x/Sqr(-x*x+1)) + 1.5708$
ArcCoTangent	$ArcTan(x) = Atn(x) + 1.5708$
ArcSecant	$ArcSec(x) = Atn(x/Sqr(x*x-1)) + Sgn(x-1)*1.5708$
ArcSine	$ArcSin(x) = Atn(x/Sqr(-x*x+1))$
CoSecant	$CoSec(x) = 1/Sin(x)$
CoTangent	$CoTan(x) = 1/Tan(x)$
Hyperbolic ArcCoSecant	$HArcCoSec(x) = Log((Sgn(x)*Sqr(x*x+1)+1)/x)$
Hyperbolic ArcCosine	$HArcCos(x) = Log(x+Sqr(x*x-1))$
Hyperbolic ArcCoTangent	$HArcCoTan(x) = Log((x+1)/(x-1))/2$
Hyperbolic ArcSecant	$HArcSec(x) = Log((Sqr(-x*x+1)+1)/x)$
Hyperbolic ArcSine	$HArcSin(x) = Log(x+Sqr(x*x+1))$
Hyperbolic ArcTangent	$HArcTan(x) = Log((1+x)/(1-x))/2$

Table 25. Trigonometric Methods

Method	Computation
Hyperbolic CoSecant	$HCoSec(x) = 2/(Exp(x)-Exp(-x))$
Hyperbolic Cosine	$HCos(x) = (Exp(x)+Exp(-x))/2$
Hyperbolic Cotangent	$HCotan(x) = (Exp(x)+Exp(-x))/ (Exp(x)-Exp(-x))$
Hyperbolic Secant	$HSec(x) = 2/(Exp(x)+Exp(-x))$
Hyperbolic Sine	$HSin(x) = (Exp(x)-Exp(-x))/2$
Hyperbolic Tangent	$HTan(x) = (Exp(x)-Exp(-x))/(Exp(x)+Exp(-x))$
Secant	$Sec(x) = 1/Cos(x)$

## Exponential Method

The Exponential method returns the value *e* raised to the power of the value that you specify in the number argument. The value *e* is the base of natural logarithms. The constant *e* is approximately 2.718282. For information about how this method handles the data type, see ["How Some Math Methods Handle the Data Type" on page 166](#).

### Format

Exp(*number*)

The following table describes the arguments that you can use with this method.

Argument	Description
number	The exponent value of <i>e</i> .

### Example

The following example estimates the value of a factorial of a number that the user enters:

```

Sub Button_Click
    Dim x as Single
    Dim msgtext, PI
    Dim factorial as Double
    PI = 3.14159
i: x = 55
    If x <= 0 then
        Exit Sub
    ElseIf x > 88 then
        Goto i
    End If
    factorial = Sqr(2 * PI * x) * (x^x/Exp(x))
    msgtext = "The estimated factorial is: " & Format _
        (factorial, "Scientific")
End Sub

```

**About the Factorial**

A *factorial* is the product of a number and each integer between it and the number 1. For example, 5 factorial, or 5!, is the product of 5\*4\*3\*2\*1, or the value 120. An exclamation point (!) can specify a factorial.

**Get Absolute Value Method**

The Get Absolute Value method returns the absolute value of the value that the number argument contains. The data type of the return value matches the data type of the value in the number argument. This method does the following:

- If the value is a string variant type, then it converts the return value to a double variant type.
- If the value is an empty variant type, then it converts the return value to a long variant type.

For more information, see ["Variants" on page 26](#).

**Format**

*Abs(number)*

The following table describes the arguments that you can use with this method.

Argument	Description
number	Any valid numeric expression.

**Example**

The following example determines the difference between the oldacct variable and the newacct variable:

```
Sub Button_Click
  Dim oldacct, newacct, count
  oldacct = 1234566
  newacct = 33345
  count = Abs(oldacct - newacct)
End Sub
```

**Get ANSI Integer Method**

The Get ANSI Integer method returns an integer that corresponds to the ANSI code of the first character in the string that you specify. You can use the Get ANSI String method to modify an ANSI code to string characters. For more information, see ["Get ANSI String Method" on page 145](#).

**Format**

*Asc(string)*



The following table describes the arguments that you can use with this method.

Argument	Description
string	A string expression that contains one or more characters.

### Example

The following example asks the user for a letter and returns the ANSI value for this letter:

```
Sub Button_Click
    Dim userchar As String
    Dim ascVal as Integer
    userchar = "Z"
    ascVal = Asc(userchar)
End Sub
```

## Get Arctangent Method

The Get Arctangent method returns the angle in radians of the arctangent of a number that you specify. It assumes the value in the number argument is the ratio of two sides of a right triangle: the side opposite the angle to find and the side adjacent to the angle. It returns a single-precision value for a ratio expressed as an integer, a currency, or a single-precision numeric expression. The return value is a double-precision value for any of the following numeric expressions:

- Long
- Variant
- Double-precision

You can multiply a value by  $(180/\text{PI})$  to convert radians to degrees. The value of PI is approximately 3.14159.

### Format

*Atn(number)*

This method uses the same arguments as the Get Absolute Value method. For more information, see ["Get Absolute Value Method" on page 168](#).

### Example

The following example finds the roof angle necessary for a house that includes an attic ceiling height of 8 feet at the roof peak and a 16 foot span from the outside wall to the center of the house. The Get Arctangent method returns the angle in radians. It multiplies this value by  $180/\text{PI}$  to convert it to degrees:

```
Sub Button_Click
    Dim height As Single, span As Single, angle As Single
    Dim PI As Single
    PI = 3.14159
```

```

height = 8
span = 16
angle = Atn(height/span) * (180/PI)
End Sub

```

## Get Cosine Method

The Get Cosine method returns the cosine of an angle. The angle can be positive or negative. The return value is between negative 1 and 1. To convert degrees to radians, this method multiplies the return value by (PI/180). The value of PI is approximately 3.14159.

### Format

Cos(number)

The following table describes the arguments that you can use with this method.

Argument	Description
number	An angle in radians.

### Example

The following example finds the length of a roof, given the roof pitch, and the distance of the house from the house center to the outside wall of the house:

```

Sub Button_Click
    Dim bwidth As Single, roof As Single, pitch As Single
    Dim msgtext
    Const PI = 3.14159
    Const conversion = PI/180
    pitch = 35
    pitch = Cos(pitch * conversion)
    bwidth = 75
    roof = bwidth/pitch
    msgtext = "The length of the roof is " & _
        Format(roof, "##.##") & " feet."
End Sub

```

## Get Hexadecimal Method

The Get Hexadecimal Method returns the hexadecimal representation of the value in the number argument. It returns this value in a string. If the value in the number argument:

- **Is an integer.** The return string contains up to four hexadecimal digits.
- **Is not an integer.** This method converts the value to a long integer, and the string can contain up to eight hexadecimal digits.

You precede the hexadecimal value with the following characters to express a hexadecimal number:

&H

For example, &H10 equals decimal 16 in hexadecimal notation.

### Format

Hex[\$] (*number*)

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

This method uses the same arguments as the Get Absolute Value method. For more information, see ["Get Absolute Value Method" on page 168](#).

### Example

The following example returns the hex value for a number that the user enters:

```
Sub Button_Click
    Dim usernum as Integer
    Dim hexvalue as String
    usernum = 23
    hexvalue = Hex(usernum)
End Sub
```

## Get Integer Method

The Get Integer method returns the integer part of a number:

- For a positive number, it removes the fractional part of the expression and returns the integer part only.
- For a negative number, it returns the largest integer that is less than or equal to the expression. For example:
  - Int(6.2) returns 6.
  - Int(-6.2) returns negative 7.

### Format

Int(*number*)

This method uses the same arguments as the Get Absolute Value method. For more information, see ["Get Absolute Value Method" on page 168](#).

### Similarities Between the Get Integer Method and the Get Rounded Integer Method

The Get Integer method performs the same work as the Get Rounded Integer method except it handles negative numbers differently. For example:

- Int(-8.347) = -9
- Fix(-8.347) = -8

For more information, see [“Get Rounded Integer Method” on page 172.](#)

### How The Get Integer Method Handles Variant Types

The return type matches the type of the numeric expression. This includes a variant expression that returns the same variant type as the input value except for the following items:

- The string variant type returns as the double variant type.
- An empty variant type returns as a long variant type.

For more information, see [“Variants” on page 26.](#)

### Example

The following example uses the Get Integer method to create random numbers in the range of ASCII values for lowercase a through z. This ASCII range is 97 through 122. It converts the values to letters and displays them as a string:

```
Sub Button_Click
    Dim x As Integer, y As Integer
    Dim str1 As String, letter As String
    Dim randomvalue As Double
    Dim upper As Integer, lower As Integer
    Dim msgtext, newline
    upper = Asc("z")
    lower = Asc("a")
    newline = Chr(10)
    Randomize
    For x = 1 to 26
        randomvalue = Int(((upper - (lower + 1)) * Rnd) + lower)
        letter = Chr(randomvalue)
        str1 = str1 & letter
        'Need to waste time here for fast processors
        For y = 1 to 1500
            Next y
        Next x
        msgtext = "The string is:" & newline
        msgtext = msgtext & str1
    End Sub
```

## Get Rounded Integer Method

The Get Rounded Integer method removes the fractional part of a number. It returns the integer part of a number. For positive and negative numbers, it removes the fractional part of the expression and returns the integer part only. For example:

- Fix (6.2) returns 6.
- Fix (-6.2) returns negative 6.

For more information, see [“This method uses the same arguments as the Get Absolute Value method. For more information, see “Get Absolute Value Method” on page 168.” on page 171.](#)

**Format**`Fix(number)`

This method uses the same arguments as the Get Absolute Value method. For more information, see [“Get Absolute Value Method” on page 168](#).

**How The Get Integer Method Handles Variant Types**

The data type of the return value matches the data type of the numeric expression. This includes variant expressions unless the numeric expression is one of the following:

- **A string variant type that evaluates to a number.** In this situation, the data type of the return value is a double variant type.
- **An empty variant type.** In this situation, the data type of the return value is a long variant type.

For more information, see [“Variants” on page 26](#).

**Example**

The following example returns the integer portion of a number that the user enters:

```
Sub Button_Click
    Dim usernum
    Dim intvalue
    usernum = 77.54
    intvalue = Fix(usernum)
End Sub
```

## Get Logarithm Method

The Get Logarithm method returns the natural logarithm of a number. For information on how this method handles the data type, see [“How Some Math Methods Handle the Data Type” on page 166](#).

**Format**`Log(number)`

This method uses the same arguments as the Get Absolute Value method. For more information, see [“Get Absolute Value Method” on page 168](#).

**Example**

The following example uses the Get Logarithm method to determine which of the following numbers is larger:

- $999^{1000}$  (999 to the 1000th power)
- $1000^{999}$  (1000 to the 999th power):

```
Sub Button_Click
    Dim x
    Dim y
```

```

x = 999
y = 1000
a = y * (Log(x))
b = x * (Log(y))
If a>b then
    "999^1000 is greater than 1000^999"
Else
    "1000^999 is greater than 999^1000"
End If
End Sub

```

You cannot use the exponent (^) operator for very large numbers, such as 999^1000.

## Get Octal Method

The Get Octal method converts a number to an octal (base 8) number. It returns the octal representation of a number as a string. The following data type of the integer determines the octal digits that the string can contain:

- **Is an integer data type.** The string can contain up to six octal digits.
- **Is not an integer data type.** This method converts the expression to a long data type. The string can contain up to 11 octal digits.

To represent an octal number, you precede the octal value with the following code:

```
&O
```

For example, the following code equals decimal 8 in octal notation:

```
&O10
```

### Format

```
oct[$](number)
```

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

This method uses the same arguments as the Get Absolute Value method. For more information, see ["Get Absolute Value Method" on page 168](#).

### Example

The following example prints the octal values for the numbers 1 through 15:

```

Sub Button_Click
    Dim x As Integer, y As Integer
    Dim msgtext As String
    Dim nofspace As Integer
    msgtext = "Octal numbers from 1 to 15:" & Chr(10)
    For x = 1 to 15
        nofspace = 10
        y = Oct(x)
        If Len(x) = 2 then

```

```

        nofspace = nofspace - 2
    End If
    msgtext = msgtext & Chr(10) & x & Space(nospace) & y
    Next x
End Sub

```

## Get Number Sign Method

The Get Number Sign method returns a value that identifies the sign of a number. It returns a different value depending on the following value of the number:

- **Number is less than zero.** It returns negative 1.
- **Number is equal to zero.** It returns 0.
- **Number is greater than zero.** It returns 1.

### Format

`Sgn(number)`

This method uses the same arguments as the Get Absolute Value method. For more information, see ["Get Absolute Value Method" on page 168](#).

### Example

The following example examines the value of the profit variable. If this value is a negative number, then it displays 0 for profit:

```

Sub Button_Click
    Dim profit as Single
    Dim expenses
    Dim sales
    expenses = 100000
    sales = 200000
    profit = val(sales)-val(expenses)
    If Sgn(profit) = 1 then
        'Yeah! We turned a profit!
    ElseIf Sgn(profit) = 0 then
        'Okay. We broke even.
    Else
        'uh, oh. We lost money.
    End If
End Sub

```

## Get Random Number Method

The Get Random Number method returns a single-precision, pseudo-random number between 0 and 1 depending on the following value that you specify in the number argument:

- **Less than zero.** Uses the number you specify as the seed for a pseudo-random number. It creates this number every time the Get Random Number method runs.
- **Equal to zero.** Uses the number most recently created.
- **Greater than zero or no value.** Creates a sequence of pseudo-random numbers. Each run of the Get Random Number method uses the next number in the sequence. It creates the same sequence of random numbers when it runs unless the Randomize method resets the random number generator.

Because this method always uses the same algorithm and the same seed value to create a number, it creates a pseudo-random number rather than a true random number. The number it creates appears to be random unless it runs a very large number of iterations, at which point a pattern of numbers might emerge. For practical purposes, you can consider this pseudo-random number to fulfill the requirements you might have to create a random number.

**Format**

Rnd[(*number*)]

The following table describes the arguments that you can use with this method.

Argument	Description
number	A numeric expression that describes how to create the random number.

**Example**

For an example, see ["Randomize Method" on page 178](#).

## Get Sine Method

The Get Sine method returns the sine of an angle specified in radians. The return value is between -1 and 1. You specify the angle in radians as a positive or negative number. To convert degrees to radians, this method multiplies degrees by (PI/180). The value of PI is 3.14159.

For information on how this method handles the data type, see ["How Some Math Methods Handle the Data Type" on page 166](#).

**Format**

Sin(*number*)

The following table describes the arguments that you can use with this method.

Argument	Description
number	A numeric expression that contains a number that represents the size of an angle in radians.



**Example**

The following example finds the height of a building, given the length of the roof and the roof pitch:

```
Sub Button_Click
    Dim height, rooflength, pitch, msgtext As String
    Const PI = 3.14159
    Const conversion = PI/180
    pitch = 35
    pitch = pitch * conversion
    rooflength = 75
    height = Sin(pitch) * rooflength
    msgtext = "The height of the building is "
    msgtext = msgtext & Format(height, "##.##") & " feet."
End Sub
```

## Get Square Root Method

The Get Square Root method returns the square root of a number. For information on how this method handles the data type, see ["How Some Math Methods Handle the Data Type" on page 166](#).

**Format**

Sqr(*number*)

The following table describes the arguments that you can use with this method.

Argument	Description
number	An expression that contains the number whose square root is to be found.

**Example**

For an example that calculates the square root of 2 as a double-precision floating-point value and displays it in scientific notation, see ["Set String Format Method" on page 157](#).

## Get Tangent Method

The Get Tangent method returns the tangent of an angle in radians. You specify the value in the number argument in radians. This value can be positive or negative. To convert degrees to radians, this method multiplies degrees by PI/180. The value of PI is 3.14159.

For information on how this method handles the data type, see ["How Some Math Methods Handle the Data Type" on page 166](#).

**Format**

Tan(*number*)

The following table describes the arguments that you can use with this method.

Argument	Description
number	A numeric expression that contains the number of radians in the angle whose tangent this method returns.

### Example

The following example finds the height of the exterior wall of a building, given the roof pitch and the length of the building:

```
Sub Button_Click
    Dim bldglen, wallht
    Dim pitch
    Dim msgtext
    Const PI = 3.14159
    Const conversion = PI/180
    On Error Resume Next
    pitch = 35
    pitch = pitch * conversion
    bldglen = 150
    wallht = Tan(pitch) * (bldglen/2)
End Sub
```

## Randomize Method

The Randomize method creates a starting value for the random number generator. It does not return a value. If you do not specify a value for the number argument, then it uses the Get Seconds method to reset the random number generator.

### Format

Randomize [*number*]

The following table describes the arguments that you can use with this method.

Argument	Description
number	An integer value that is in the range of negative 32768 through 32767.

### Example

The following example uses the Randomize method and the Get Random Number method to create a random string of characters. The second For Next loop slows down processing in the first For Next loop so that the Timer method can seed the Randomize method with a new value each time the loop runs:

```
Sub Button_Click
    Dim x As Integer, y As Integer
    Dim str1 As String, str2 As String
```

```

Dim letter As String
Dim randomvalue
Dim upper, lower
Dim msgtext
upper = Asc("z")
lower = Asc("a")
newline = Chr(10)
Randomize
For x = 1 to 26
    randomvalue = Int(((upper - (lower + 1)) * Rnd) + lower)
    letter = Chr(randomvalue)
    str1 = str1 & letter
    For y = 1 to 1500
        Next y
    Next x
    msgtext = str1
End Sub

```

## Date and Time Methods

This topic describes date and time methods. It includes the following topics:

- ["Convert Number to Date Method" on page 180](#)
- ["Convert Serial Number to Date Method" on page 181](#)
- ["Convert String to Date Method" on page 182](#)
- ["Convert String to Time Method" on page 183](#)
- ["Extract Day From Date-Time Value Method" on page 184](#)
- ["Extract Hour From Date-Time Value Method" on page 185](#)
- ["Extract Minute From Date-Time Value Method" on page 186](#)
- ["Extract Month From Date-Time Value Method" on page 187](#)
- ["Extract Second From Date-Time Value Method" on page 187](#)
- ["Extract Weekday From Date-Time Value Method" on page 188](#)
- ["Extract Year From Date-Time Value Method" on page 189](#)
- ["Get Current Date Method" on page 189](#)
- ["Get Current Date and Time Method" on page 190](#)
- ["Get Current Time Method" on page 190](#)
- ["Get Current Seconds Method" on page 192](#)
- ["Get Serial Time Method" on page 193](#)
- ["Set Date Method" on page 193](#)
- ["Set Time Method" on page 195](#)

## Convert Number to Date Method

The Convert Number to Date method converts an expression to the data type variant of type date. Note the following:

- It returns a date variable type that represents a date from January 1, 100, through December 31, 9999. A value of 2 represents January 1, 1900.
- It represents a time as fractional days.
- It accepts string and numeric values.
- It converts the time portion of a date expression in the following situations:
  - If you include a time portion as part of the expression.
  - If the time expression is the only argument.

To compare dates, you must make sure that you format these dates consistently with each other. You can use this method to convert both expressions before Siebel VB compares them.

For ways to display the desired result of a date conversion, see ["Set String Format Method" on page 157](#).

For more information, see ["Variants" on page 26](#).

### Format

`CVDate(expression)`

The following table describes the arguments that you can use with this method.

Argument	Description
expression	Any expression that Siebel VB can evaluate to a number.

### How the Operating System Affects the Date Format

The date format depends on the format that the operating system uses. For example, if the operating system uses the mm/dd/yyyy format, then the input argument must use the mm/dd/yyyy format or the mm-dd-yyyy format. If you use an integer value, then to calculate this date Siebel eScript adds this integer as the number of days after the year 1900. In this situation, it returns a date in the mm/dd/yyyy form.

### Example

The following example displays the date for one week from a date that the user enters:

```

sub Button_Click
    Dim str1 as String
    Dim nextweek
    Dim msgtext as String
i:
    str1 = "2/5/2001"
    answer = IsDate(str1)

```

```

If answer = -1 then
  str1 = CVDate(str1)
  nextweek = DateValue(str1) + 7
  msgtext = "One week from the date entered is:
  msgtext = msgtext & "Format(nextweek,"dddddd")
Else
  Goto i
End If
End Sub

```

## Convert Serial Number to Date Method

The Convert Serial Number to Date method converts a number to a date. It returns a date variable type that represents a date from January 1, 100, through December 31, 9999. For more information, see ["Variants" on page 26](#).

To specify a relative date, you can use a numeric expression for any of the arguments. This expression evaluates to a number of days, months, or years before or after a specific date.

### Format

`DateSerial(year, month, day)`

The following table describes the arguments that you can use with this method. As an option, you can use a numeric expression instead of an integer for each argument.

Argument	Description
year	An integer that identifies a year in the range of 100 through 9999.
month	An integer that identifies a month in the range of 1 through 12.
day	An integer that identifies a day in the range of 1 through 31.

### Example

The following example finds the day of the week for November 7 in the year 2009:

```

Sub Button_Click
  Dim checkdate As Variant, daynumber As Variant
  Dim msgtext As String, checkday as Variant
  Const checkyear = 2009
  Const checkmonth = 11
  checkday = 7
  checkdate = DateSerial(checkyear, checkmonth, checkday)
  daynumber = weekday(checkdate)
  msgtext = "November 7, 2009 falls on a " & _
  Format(daynumber, "ddd")
End Sub

```

## Convert String to Date Method

The Convert String to Date method converts a string to a date. It returns a date variable type that represents a date from January 1, 100, through December 31, 9999, where January 1, 1900, is 2. For more information, see [“Variants” on page 26](#). Note the following:

- It accepts multiple string representations for a date.
- It uses the international settings of the operating system to resolve a numeric date.
- Because this method handles dates and not times, if it receives time information then it modifies this time to 12:00:00 AM, which is midnight of the date value.

For ways to display the desired result of a date conversion, see [“Set String Format Method” on page 157](#).

### Format

DateValue(*date*)

The following table describes the arguments that you can use with this method.

Argument	Description
date	Any numeric or string expression that can evaluate to a date and time or date value. This value can be of any type, including string.

If the value that the date argument contains is not in a valid date format, then this method returns a Type Mismatch error.

### Using the DateValue Statement With the GetFormattedFieldValue Statement

To avoid a locale conflict, it is recommended that you do not use the DateValue statement together with the GetFormattedFieldValue statement. Note the following:

- The GetFormattedFieldValue statement formats a date according to the locale setting of the object manager.
- The DateValue statement expects a date string in a format according to the locale setting of the operating system.
- A Siebel Server can run multiple object managers with different language settings. For example, ENU, DEU, or FRA. However, the server operating system can only have one value selected for Regional Options, such as English (United States).

In this example, if a client connects to a DEU object manager on a Siebel Server where the Regional Options parameter is set to English (United States), then the GetFormattedFieldValue statement returns a string that contains a date that it formats for DEU, but the DateValue statement expects a string formatted for ENU. This situation results in the following error in Siebel VB:

```
Illegal Function Call
```

**Example**

The following example displays the date for one week from the date that the user enters:

```
Sub Button_Click
    Dim str1 As String, answer As Integer, msgtxt As String
    Dim nextweek
i:
    str1 = "12/22/2000"
    answer = IsDate(str1)
    If answer = -1 then
        str1 = CDate(str1)
        nextweek = DateValue(str1) + 7
        msgtxt = "One week from your date is: "
        msgtxt = msgtxt & Format(nextweek, "dddddd")
    Else
        msgtxt = "Invalid date or format. Try again."
        Goto i
    End If
End Sub
```

## Convert String to Time Method

The Convert String to Time method converts a string to time. It returns a variant of date variable type that represents a time in one of the following ranges:

- The time 0:00:00 through 23:59:59
- The time 12:00:00 A.M. through 11:59:59 P.M.

For more information, see ["Variants" on page 26](#).

**Format**

TimeValue(*time*)

The following table describes the arguments that you can use with this method.

Argument	Description
time	Any numeric or string expression that can evaluate to a date and time or time value.

**Example**

The following example writes a variable to a file according to a comparison of the last saved time and the current time. It dimensions the variables that it uses for the Convert String to Time method as double. It does this to make sure the calculations work correctly according to their values:

```
Sub Button_Click
    Dim tempfile As String
    Dim ftime As Variant
    Dim filetime as Double
    Dim curtime as Double
```

```

Dim minutes as Double
Dim acctno(100) as Integer
Dim x, I
tempfile = "C:\TEMP001"
Open tempfile For Output As 1
ftime = FileDateTime(tempfile)
filetime = TimeValue(ftime)
minutes = TimeValue("00:02:00")
x = 1
I = 1
acctno(x) = 0
Do
    curtime = TimeValue(Time)
    acctno(x) = 46
    If acctno(x) = 99 then
        For I = I to x-1
            Write #1, acctno(I)
        Next I
        Exit Do
    ElseIf filetime + minutes <= curtime then
        For I = I to x
            Write #1, acctno(I)
        Next I
    End If
    x = x + 1
Loop
Close #1
x = 1
msgtext = "You entered:" & Chr(10)
Open tempfile for Input as #1
Do while Eof(1) <> -1
    Input #1, acctno(x)
    msgtext = msgtext & Chr(10) & acctno(x)
    x = x + 1
Loop
Close #1
Kill "C:\TEMP001"
End Sub

```

## Extract Day From Date-Time Value Method

The Extract Day From Date-Time Value method returns the day component of a date and time value. The return value is an integer variable type in the range of 1 through 31. If the return value is null, then it returns a null variable type. For more information, see ["Variants" on page 26](#).

### Format

Day(*date*)

The argument that this method uses is the same as the argument that the Convert String to Date method uses. For more information, see ["Convert String to Date Method" on page 182](#).



**Example**

The following example finds the month in the range of 1 through 12 and the day in the range of 1 through 31 for this Thursday:

```
Sub Button_Click
    Dim x As Integer, Today As Variant, msgtext As String
    Today = DateValue(Now)
    Let x = 0
    Do While Weekday(Today + x) <> 5
        x = x + 1
    Loop
    msgtext = "This Thursday is: " & Month(Today + x) & "/" & _
        Day(Today + x)
End Sub
```

**Extract Hour From Date-Time Value Method**

The Extract Hour From Date-Time Value method returns the hour component of a date and time value. The return value is an integer variable type in the range of 0 through 23. Note the following:

- If the return value is null, then this method returns a null variable type. For more information, see ["Variants" on page 26](#).
- The value in the time argument can be of any type, including string.
- The value in the time argument is a double-precision value:
  - The numbers to the left of the decimal point denote the date.
  - The decimal value denotes the time from 0 to 0.99999.

You can use the Convert String to Time method to get the correct value for a specific time.

**Format**

*Hour(time)*

The argument that this method uses is the same as the argument that the Convert String to Time method uses. For more information, see ["Convert String to Time Method" on page 183](#).

If the value that the minute argument contains does not evaluate to a date and time or to a time value, then this method returns 0 (zero). For example:

- The value 13:26 or the 1:45:12 PM returns a valid result.
- The value 1326 returns a 0.

**Extract Minute From Date-Time Value Method**

The Extract Minute From Date-Time Value method returns the minute component of a date and time value. The return value is an integer variable type in the range of 0 through 59. If the return value is null, then this method returns a null variable type. For more information, see ["Variants" on page 26](#).

### Format

Minute(*time*)

The argument that this method uses is the same as the argument that the Convert String to Time method uses. For more information, see ["Convert String to Time Method" on page 183](#).

If the value that the time argument contains does not evaluate to a date and time or to a time value, then this method returns 0 (zero). For example:

- The value 13:26 or the value 1:45:12 PM returns a valid results.
- The value 1326 returns a 0.

### Example

The following example gets the hour, minute, and second of the last modification date and time of a file:

```
Sub Button_Click
    Dim filename as String
    Dim ftime
    Dim hr, min
    Dim sec
    Dim msgtext as String
    i: msgtext = "Enter a filename:"
    filename = "d:\temp\trace.txt"
    If filename = "" then
        Exit Sub
    End If
    On Error Resume Next
    ftime = FileDateTime(filename)
    If Err <> 0 then
        Goto i:
    End If
    hr = Hour(ftime)
    min = Minute(ftime)
    sec = Second(ftime)
End Sub
```

## Extract Month From Date-Time Value Method

The Extract Month From Date-Time Value method returns the month component of a date and time value. The return value is an integer variable type in the range of 1 through 12. If the return value is null, then this method returns a null variable type. For more information, see ["Variants" on page 26](#).

### Format

Month(*date*)

The argument that this method uses is the same as the argument that the Convert String to Date method uses. For more information, see ["Convert String to Date Method" on page 182](#).

If the value in the date argument does not evaluate to a date and time or to a time value, then this method returns 0 (zero). For example:

- The value 11/20 or the value 11-20-2001 returns a valid results.
- The value 1120 returns a 0.

### Example

The following example finds the month in the range of 1 through 12 and the day in the range of 1 through 31 for this Thursday:

```
Sub Button_Click
    Dim x As Integer, Today As Variant
    Dim msgtext
    Today = DateValue(Now)
    Let x = 0
    Do while weekday(Today + x) <> 5
        x = x + 1
    Loop
    msgtext = "This Thursday is: " & Month(Today + x) & "/" & _
        & Day(Today + x)
End Sub
```

## Extract Second From Date-Time Value Method

The Extract Second From Date-Time Value method returns the seconds component of a date and time value. The return value is an integer variable type in the range of 0 through 59. If the return value is null, then this method returns a null variable type. For more information, see ["Variants" on page 26](#).

### Format

Second(*time*)

The argument that this method uses is the same as the argument that the Convert String to Time method uses. For more information, see ["Convert String to Time Method" on page 183](#).

If the value in the time argument does not evaluate to a date and time or to a time value, then this method returns 0 (zero). For example:

- The value 13:26:39 or the value 1:45:12 PM returns a valid results.
- The value 1326 returns a 0.

### Example

For an example, see ["Extract Minute From Date-Time Value Method" on page 186](#).

## Extract Weekday From Date-Time Value Method

The Extract Weekday From Date-Time Value method returns the day of the week of a date and time value. It returns this value as an integer in the range of 1 through 7, where 1 is Sunday and 7 is Saturday.

It accepts any expression, including strings, and attempts to convert the input value to a date value.

The return value is an integer variable type. If the return value is null, then this method returns a null variable type. For more information, see ["Variants" on page 26](#).

### Format

`weekday(date)`

The argument that this method uses is the same as the argument that the Convert String to Date method uses. For more information, see ["Convert String to Date Method" on page 182](#).

### Example

The following example determines the day of the week when November 7 occurs in the year 2009:

```
Sub Button_Click
  Dim checkdate
  Dim daynumber
  Dim msgtext
  Dim checkday as Variant
  Const checkyear = 2009
  Const checkmonth = 11
  Let checkday = 7
  checkdate = DateSerial(checkyear, checkmonth, checkday)
  daynumber = weekday(checkdate)
  msgtext = "November 7, 2009 falls on a " & _
  Format(daynumber, "dddd")
End Sub
```

## Extract Year From Date-Time Value Method

The Extract Year From Date-Time Value method returns the year component of a date and time value. It returns this value as an integer in the range of 100 through 9999. It accepts any type of date, including strings, and attempts to convert the input value to a date value.

The return value is an integer variable type. If the return value is null, then this method returns a null variable type. For more information, see ["Variants" on page 26](#).

### Format

`Year(date)`

The argument that this method uses is the same as the argument that the Convert String to Date method uses. For more information, see ["Convert String to Date Method" on page 182](#).

**Example**

The following example returns the year for today:

```
Sub Button_Click
    Dim nowyear
    nowyear = Year(Now)
End Sub
```

## Get Current Date Method

The Get Current Date method returns a ten character string that includes the current date as determined by the computer clock.

**Format**

Date[\$]

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

This method does not include arguments.

**Example**

The following example displays the date for one week from the current computer date:

```
Sub Button_Click
    Dim nextweek
    nextweek = CVar(Date) + 7
End Sub
```

## Get Current Date and Time Method

The Get Current Date and Time method returns the current date and time as a date variable type according to the setting of the computer date and time. For more information, see ["Variants" on page 26](#).

You can use the Set String Format method to specify the format that Siebel CRM uses to display the date and time.

**Format**

Now()

This method does not include arguments.

**Example**

The following example finds the month in the range of 1 through 12 and the day in the range of 1 through 31 for this Thursday. For another example, see ["Set String Format Method" on page 157](#):

```

Sub Button_Click
  Dim x As Integer, today As Variant
  Dim msgtext As String
  Today = DateValue(Now)
  Let x = 0
  Do While weekday(Today + x) <> 5
    x = x + 1
  Loop
  msgtext = "This Thursday is: " & Month(Today + x) & "/" & _
    Day(Today + x)
End Sub

```

## Get Current Time Method

This method returns a string that contains the current time. It returns an eight character string of the following format:

*hh:mm:ss*

where:

- *hh* is the hour
- *mm* is the minute
- *ss* is the second

The hour uses a 24 hour clock in the range of 0 through 23.

### Format

Time[\$]

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

This method does not include arguments.

### Example

The following example writes data to a file if it has not been saved in the last two minutes:

```

Sub Button_Click
  Dim tempfile
  Dim filetime, curtime
  Dim msgtext
  Dim acctno(100) as Single
  Dim x, I
  tempfile = "c:\temp001"
  Open tempfile For Output As #1
  filetime = FileDateTime(tempfile)
  x = 1
  I = 1
  acctno(x) = 0
  Do

```

```

    curtime = Time
    acctno(x) = 44
    If acctno(x) = 99 then
        For I = 1 to x -1
            Write #1, acctno(I)
        Next I
        Exit Do
    ElseIf (Minute(filetime) + 2) <= Minute(curtime) then
        For I = I to x
            Write #1, acctno(I)
        Next I
    End If
    x = x + 1
Loop
Close #1
x = 1
msgtext = "Contents of c:\temp001 is:" & Chr(10)
Open tempfile for Input as #1
Do While Eof(1) <> -1
    Input #1, acctno(x)
    msgtext = msgtext & Chr(10) & acctno(x)
    x = x + 1
Loop
Close #1
Kill "c:\temp001"
End Sub

```

## Get Current Seconds Method

The Get Current Seconds method returns the number of seconds that have elapsed since midnight. You can use the Get Current Seconds method and the Randomize statement to seed the random number generator. For more information, see ["Randomize Method" on page 178](#).

### Format

Timer

This method does not include arguments.

### Example

The following example uses the Get Current Seconds method to find Megabucks numbers:

```

Sub Button_Click
    Dim msgtext As String
    Dim value(9) As Single
    Dim nextvalue As Integer
    Dim x As Integer
    Dim y As Integer

```

```

msgtext = "Your Megabucks numbers are: "
For x = 1 to 8
  Do
    value(x) = Timer
    value(x) = value(x) * 100
    value(x) = Str(value(x))
    value(x) = Val(Right(value(x),2))
  Loop Until value(x)>1 and value(x)<36
  For y = 1 to 1500
  Next y
Next x

For y = 1 to 8
For x = 1 to 8
  If y <> x then
    If value(y) = value(x) then
      value(x) = value(x) + 1
    End If
  End If
Next x
Next y
For x = 1 to 8
  msgtext = msgtext & value(x) & " "
Next x
End Sub

```

## Get Serial Time Method

The Get Serial Time method returns a time as a variant of type 7 (date and time) for a specific hour, minute, and second.

To specify a relative time for each argument, you can use a numeric expression that identifies the number of hours, minutes, or seconds before or after a specific time.

### Format

TimeSerial(*hour*, *minute*, *second*)

The following table describes the arguments that you can use with this method.

Argument	Description
hour	A numeric expression that contains a value in the range of 0 through 23 that identifies an hour.
minute	A numeric expression that contains a value in the range of 0 through 59 that identifies a minute.
second	A numeric expression that contains a value in the range of 0 through 59 that identifies a second.



**Example**

The following example displays the current time:

```
Sub Button_Click
  Dim y As Variant
  Dim msgtext As String
  Dim nowhr As Integer
  Dim nowmin As Integer
  Dim nowsec As Integer
  nowhr = Hour(Now)
  nowmin = Minute(Now)
  nowsec = Second(Now)
  y = TimeSerial(nowhr,nowmin,nowsec)
  msgtext = "The time is: " & y
End Sub
```

**Set Date Method**

The Set Date method sets the computer date. It does not return a value. Note the following:

- If you do not include the dollar sign (\$), then the expression can be a string that contains a valid date, a date variable type, or a string variable type. For more information, see ["Variants" on page 26](#).
- If the expression argument is not already a date variable type, then it attempts to convert this value to a valid date from January 1, 1980, through December 31, 2099.
- To identify the day, month, and year if a string contains three numbers that are separated by valid date separators, it uses the Short Date format in the International section of Microsoft Windows Control Panel. It recognizes month names in full or abbreviated form.

**Format**

Date[\$] = *expression*

The following table describes the arguments that you can use with this method.

Argument	Description
expression	A string in one of the following forms: <ul style="list-style-type: none"> <li>■ mm-dd-yy</li> <li>■ mm-dd-yyyy</li> <li>■ mm/dd/yy</li> <li>■ mm/dd/yyyy</li> </ul>

The following table describes the value you must specify for each item in the expression.

Value	Value You Must Specify
mm	A month expressed as a two-digit number in the range of 01 through 12.
dd	A day expressed as a two-digit number in the range of 01 through 31.
yy	A year expressed as a two-digit number in the range of 00 through 99.
yyyy	A year expressed as a four-digit number in the range of 1980 through 2099.

### Example

The following example modifies the computer date to a date that the user enters:

```

Sub Button_Click
    Dim userdate
    Dim answer
i:
    userdate = "2/5/2001"
    If userdate = "" then
        Exit Sub
    End If
    answer = IsDate(userdate)
    If answer = -1 then
        Date = userdate
    Else
        Goto i
    End If
End Sub

```

## Set Time Method

The Set Time method sets the computer time. It does not return a value.

If the value in the expression argument is not already a date variable type, then this method attempts to convert it to a valid time. It recognizes the time separator characters defined in the International section of the Microsoft Windows Control Panel. For more information, see ["Variants" on page 26](#).

### Format

Time[\$] = *expression*

The following table describes the arguments that you can use with this method.

Argument	Description
expression	An expression that evaluates to a valid time.

### Usage of the Dollar Sign

If you include the dollar sign (\$), then the following items apply:

- The value in the expression argument must evaluate to a string that uses one of the following forms:
  - **hh**. Sets the time to hh hours, 0 minutes, and 0 seconds.
  - **hh:mm**. Sets the time to hh hours, mm minutes, and 0 seconds.
  - **hh:mm:ss**. Sets the time to hh hours, mm minutes, and ss seconds.
- It uses a 24 hour clock. For example, 6:00 P.M. is 18:00:00.

If you do not include the dollar sign (\$), then the following items apply:

- The expression argument can include a string that contains a valid date, or a date variable type of 8 (string).
- It accepts 12 hour and 24 hour clocks.

### Example

The following example modifies the time of the computer clock:

```

Sub Button_Click
  Dim newtime As String
  Dim answer As String
  On Error Resume Next
i:
  newtime = "5:30"
  answer = PM
  If answer = "PM" or answer = "pm" then
    newtime = newtime &"PM"
  End If
  Time = newtime
  If Err <> 0 then
    Err = 0
    Goto i
  End If
End Sub

```

## ODBC Methods

This topic describes methods that you can use with ODBC (Open Database Connectivity). It includes the following topics:

- ["Overview of ODBC Methods" on page 196](#)
- ["ODBC Close Connection Method" on page 196](#)
- ["ODBC Get Errors Method" on page 197](#)
- ["ODBC Get Query Results Method" on page 199](#)
- ["ODBC Get Schema Method" on page 201](#)

- [“ODBC Open Connection Method” on page 203](#)
- [“ODBC Run Query Method” on page 205](#)
- [“ODBC Run Query and Get Results Method” on page 206](#)
- [“ODBC Save Results to File Method” on page 208](#)

## Overview of ODBC Methods

ODBC methods in Siebel VB only support non-Unicode databases.

**CAUTION:** You must not use some methods to query a Siebel database. Instead, use the Siebel Object Interfaces to query data in a Siebel database. Use an ODBC method only to query non-Siebel data.

## ODBC Close Connection Method

The ODBC Close Connection method is a Siebel VB method that disconnects from an ODBC data source connection that the ODBC Open method established. It returns a variant that includes one of the following values:

- **0.** Successful disconnect.
- **-1.** Connection is not valid.

If you call the ODBC Close Connection method with an argument that is not valid, then it replies with the undocumented return code of -2 (negative two), which indicates a data source connection that is not valid. The following items are examples of arguments that are not valid:

- An SQLClose(0) argument
- A variable argument that does not contain an initial value

### Format

SQLClose(*connection*)

The following table describes the arguments that you can use with this method.

Argument	Description
connection	A named argument that the ODBC Open method returns. It must be a long integer. For information about named arguments, see <a href="#">“Comments” on page 29</a> and <a href="#">“Call Subroutine Method” on page 98</a> .

### Example

The following example opens the data source named sb1Test, gets the names in the ODBC data sources, and then closes the connection:

```

Sub Button_Click
'   Declarations

    Dim outputStr As String
    Dim connection As Long
    Dim prompt As Integer
    Dim datasources(1 To 50) As Variant
    Dim retcode As Variant

    prompt = 5
'   Open the data source "SblTest"
    connection = SQLOpen("DSN = SblTest", outputStr, prompt: = 4)

    action1 = 1 ' Get the names of the ODBC data sources
    retcode = SQLGetSchema(connection: = connection,action: _
        = 1,qualifier: = qualifier, ref: = datasources())

'   Close the data source connection
    retcode = SQLClose(connection)

End Sub

```

## ODBC Get Errors Method

The ODBC Get Errors method is a Siebel VB method that gets detailed information about errors that occur during an ODBC method call. It returns errors for the last ODBC method and the last connection.

### Format

SQLError(*destination*())

The following table describes the arguments that you can use with this method.

Argument	Description
destination	A two-dimensional array of type variant, where each row contains one error.

**Usage**

The ODBC Get Errors method returns detailed information for each detected error to the caller in the destination array. It fills each row of the destination array with information for one error. The following table describes how it fills elements of each row with data.

Element	Description
1	A character string that identifies the ODBC error class and subclass.  The ODBC Get Errors method might return information for more than one error in the destination array. A 0 (zero) in the first element of a row identifies the end of error information in the destination array.
2	A numeric value that identifies the native error code of the data source.
3	A text message that describes the error.

If no errors from a previous ODBC method call are present, then it returns a 0 (zero) in the array at the first element of the first row. If the array is not two dimensional or if it does not provide for the return of the preceding three elements, then it returns an error message in the array at the first element of the first row.

**Example**

The following example forces an error as a way to test the ODBC Get Errors method:

```

Sub Button_Click
' Declarations
  Dim connection As long
  Dim prompt as integer
  Dim retcode as long
  Dim errors(1 To 10, 1 To 3) as Variant

  ' Open the data source
  connection = SQLOpen("DSN = SVBTESTW;UID=DBA;PWD=SQL"
,outputStr, prompt: = 3)

  ' force an error to test SQLError choose a nonexistent table
  retcode = SQLExecQuery(connection: = connection, query: = "select * from notable
")

  ' Retrieve the detailed error message information into the
  ' errors array
  SQLError destination: = errors
  errCounter = 1
  while errors(errCounter,1) <>0
    errCounter = errCounter + 1
  wend

  retcode = SQLClose(connection)
end sub

```

## ODBC Get Query Results Method

The ODBC Get Query Results method is a Siebel VB method that gets the results of a pending query. It returns a variant that contains one of the following values:

- **The number of rows in the result set or the maxRows requested.** Indicates success.
- **-1.** Unable to get results, or no results pending.
- **0.** The query did not find any data.

It uses a default value of 0 for any argument that you do not include. This is true for all arguments except for the `fetchFirst` argument.

### Format

```
SQLRetrieve(connection, destination()[, maxColumns][, maxRows]
[, columnNames][, rowNumbers][, fetchFirst])
```

The following table describes the arguments that you can use with this method.

Argument	Description
connection	The long integer that the ODBC Open Connection method returns.
destination	A two-dimensional array of type variant. The first index of the array cannot exceed 100.
maxColumns	The number of columns that this method gets in the request. If this number specifies fewer columns than the result contains, then it discards the rightmost result columns until the result fits the size that you specify.
maxRows	The number of rows that this method gets in the request.
columnNames	An integer. If the columnNames argument is not zero, then this method does the following work: <ul style="list-style-type: none"> <li>■ Sets the first row of the array to the column names according to how the database schema specifies them.</li> <li>■ Returns the column names as the first row of the array that you identify in the ref argument.</li> </ul>
rowNumbers	An integer. If the rowNumbers argument is not zero, then that this method returns the row names as the first column of the array that you identify in the ref argument. It clears the user array before it gets the results.
fetchFirst	A positive integer that causes the result set that this method repositions to the first row of the database. <p>If the value in the fetchFirst argument is not zero, then it repositions to the first row. If the database does not support repositioning, then it returns a -1 (negative one) error is returned.</p>

### Usage

If you do not include the `maxColumns` argument or the `maxRows` argument, then the ODBC Get Query Results method does the following:

- To determine the maximum number of columns and rows to get, it uses the size of the array that you specify in the destination argument.
- Attempts to return the entire result set.

To get extra rows, you can set the `fetchFirst` argument to 0 and use the ODBC Get Query Results method again.

### Using the ODBC Get Query Results Multiple Times

In some situations, you can use the ODBC Get Query Results method multiple times until the return value is 0. For example, if the result set includes one of the following items:

- More rows than the array can contain
- More rows than the value specified in the `maxRows` argument

### Example

The following example gets information from a data source:

```
Sub Button_Click
' Declarations

    Dim connection As Long
    Dim destination(1 To 50, 1 To 125) As Variant
    Dim retcode As long

' open the connection
connection = SQLOpen("DSN = SblTest",outputStr,prompt: = 3)

' Run the query
query = "select * from customer"
retcode = SQLExecQuery(connection,query)

' retrieve the first 50 rows with the first 6 columns of
' each row into the array destination, omit row numbers and
' put column names in the first row of the array

retcode = SQLRetrieve(connection: = connection, _
    destination: = destination, columnNames: = 1, _
    rowNumbers: = 0, maxRows: = 50, maxColumns: = 6, _
    fetchFirst: = 0)

' Get the next 50 rows of from the result set
retcode = SQLRetrieve(connection: = connection, _
    destination: = destination, columnNames: = 1, _
    rowNumbers: = 0, maxRows: = 50, maxColumns: = 6)
```



```
' Close the connection
  retcode = SQLClose(connection)
End Sub
```

## ODBC Get Schema Method

The ODBC Get Schema method is a Siebel VB method that returns the following information:

- Data sources available
- Current user ID
- Names of tables names
- Types of table columns
- Other data source and database information

### Format

SQLGetSchema *connection, action, qualifier, ref()*

The following table describes the arguments that you can use with this method.

Argument	Description
connection	A long integer that the ODBC Open method returns.
action	An integer that specifies what information to return. Some database products and some ODBC drivers might not support every action.
qualifier	A string.
ref	An array of type variant that stores the results. It must be an array even if it includes only one dimension with one element.  You must make sure the destination array is properly dimensioned to support the action. If you do not do this, then this method returns an error.

### Values You Can Use In the Action Argument

Table 26 describes the values you can use in the action argument. If the ODBC Get Schema method cannot find the requested information or if the connection is not valid, then it returns a -1 (negative one).

Table 26. Values for the Action Argument

Value	Description
1	Get a list of available data sources. The dimension of ref() is 1.
2	Get a list of databases on the current connection. Siebel VB does not support this value.

Table 26. Values for the Action Argument

Value	Description
3	Get a list of owners in a database on the current connection. Siebel VB does not support this value.
4	Get a list of tables on the specified connection. It returns every table. You cannot use the qualifier argument with value 4.
5	Get a list of columns in the table that the qualifier argument and the ref argument specifies. This table must include two dimensions. This method returns the column name and the ODBC data type.
6	Get the user ID of the current connection user.
7	Get the name of the current database.
8	Get the name of the data source of the current connection.
9	Get the name of the RDBMS that the data source uses. For example, DB2.
10	Get the server name of the data source.
11	Get the terminology that the data source uses to reference owners.
12	Get the terminology that the data source uses to reference a table.
13	Get the terminology that the data source uses to reference a qualifier.
14	Get the terminology that the data source uses to reference a procedure.

**Example**

The following example opens the data source named `sb1Test`, gets the names in the ODBC data sources, and then closes the connection:

```

Sub Button_Click
  'Declarations

  Dim outputStr As String
  Dim connection As Long
  Dim prompt As Integer
  Dim datasources(1 To 50) As Variant
  Dim retcode As Variant

  prompt = 5
  'Open the data source "sb1Test"
  connection = SQLOpen("DSN=sb1Test; UID=SADMIN; PWD=SADMIN",
outputStr,prompt:=4)

  action1 = 1 ' Get the names of the ODBC data sources
  retcode = SQLGetSchema(connection:= connection,action:= 1,qualifier:=
qualifier, ref:= datasources())

```

```
'Close the data source connection
retcode = SQLClose(connection)

End Sub
```

## ODBC Open Connection Method

The ODBC Open Connection method is a Siebel VB method that establishes a connection to an ODBC data source. It returns a long integer that identifies a unique connection ID that you can use with other ODBC methods. If you include the `outputString` argument, then it returns the completed connection string in the `outputString` argument.

If it cannot establish a connection, then it returns an ODBC error with a negative numeric value. You can test for this value. For more information, see ["ODBC Get Errors Method" on page 197](#).

### Format

```
SQLOpen(connectString, [outputString][, prompt])
```

The following table describes the arguments that you can use with this method.

Argument	Description
<code>connectString</code>	<p>A string or string variable that includes the following information:</p> <ul style="list-style-type: none"> <li>■ Data source name</li> <li>■ User ID</li> <li>■ Password</li> <li>■ Any other information that the driver requires to make a connection with the data source</li> </ul> <p>The <code>connectString</code> argument typically uses the following format:</p> <pre>"DSN=dataSourceName;UID=loginID;PWD=password"</pre> <p>However, it must use the format that the ODBC driver requires. Some parts of this string might not be required. For more information on the string you use to access a Siebel application, see Siebel Technical Note #206 on My Oracle Support.</p>

Argument	Description
outputString	A string variable that holds the completed connection string.
prompt	<p>One of the following integers that specifies when to display the driver dialog box:</p> <ul style="list-style-type: none"> <li>■ <b>1.</b> Always display the driver dialog box.</li> <li>■ <b>2.</b> Display the driver dialog box only when the specification is not sufficient to make the connection.</li> <li>■ <b>3.</b> Display the driver dialog box only when the specification is not sufficient to make the connection. Dialog boxes that are not required are not available and cannot be modified.</li> <li>■ <b>4.</b> Do not display the driver dialog box. If the connection is not successful, then return an error.</li> </ul> <p>If you do not include the prompt argument, then Siebel VB uses value 2.</p>

### Example

The following example opens the data source named `SblTest`, gets the names in the ODBC data sources, and then closes the connection:

```

Sub Button_Click
    Dim outputStr As String
    Dim connection As Long
    Dim prompt As Integer
    Dim action As Integer
    Dim qualifier As String
    Dim datasources(1 To 50) As Variant
    Dim retcode As Variant

    prompt = 4
    Set ret = TheApplication.NewPropertySet()

    ' open the datasource "SblTest" with a user name of sa, _
    password of sa
    connection = _
    SQLOpen("DSN=SblTest;UID=sa;PWD=sa",outputStr,prompt:=4)
    action = 1 ' Get the names of the ODBC data sources

    retcode = SQLGetSchema(connection:=connection, _
        action:=1, _

        qualifier:=qualifier, _
        ref:=datasources())

    ' Close the data source connection
    retcode = SQLClose(connection)
End Sub

```

## ODBC Run Query Method

The ODBC Run Query method is a Siebel VB method that runs an SQL statement on a connection that the ODBC Open method establishes. It returns the number of columns in the result set for SQL SELECT statements as a variant. The value that it returns depends which of the following statements you use:

- **You use the SELECT statement with UPDATE, INSERT, or DELETE.** It returns the number of rows that the statement affected.
- **You use any other SQL statement.** It returns 0.

If it cannot run the query on the data source, or if the connection is not valid, then it returns a negative error code.

If there are any pending results on the connection, then it replaces the pending results with the new results.

### Format

SQLExecQuery(*connection*, *query*)

The following table describes the arguments that you can use with this method.

Argument	Description
connection	A long integer that the ODBC Open method returns.
query	A string that contains a valid SQL statement.

### Example

The following example performs a query on the data source:

```

sub Button_Click
  ' Declarations

  Dim connection As Long
  Dim destination(1 To 50, 1 To 125) As Variant
  Dim retcode As long

  ' open the connection
  connection = SQLOpen("DSN = SblTest",outputStr,prompt: = 3)

  ' Run the query
  query = "select * from customer"
  retcode = SQLExecQuery(connection,query)

  ' retrieve the first 50 rows with the first 6 columns of
  ' each row into the array destination, omit row numbers and
  ' put column names in the first row of the array

  retcode = SQLRetrieve(connection: = connection, _
    destination: = destination, columnNames: = 1,rowNumbers: _
    = 0,maxRows: = 50, maxColumns: = 6,fetchFirst: = 0)

```

```
' Get the next 50 rows of from the result set
retcode = SQLRetrieve(connection: = connection, _
    destination: = destination, columnNames: = 1,rowNumbers: _
    = 0,maxRows: = 50, maxColumns: = 6)

' Close the connection
retcode = SQLClose(connection)

End Sub
```

## ODBC Run Query and Get Results Method

The ODBC Run Query And Get Results method is a Siebel VB method that opens a connection to a data source, runs an SQL statement, returns the result, and then closes the connection. It returns a variant that includes one of the following values:

- **Positive number.** The request is successful. The number identifies the number of results that this method returned or the number of rows affected. Other SQL statements return 0.
- **Negative error code.** An error occurred. It cannot complete the connection, the query is not valid, or another error condition occurred.

### Format

SQLRequest(*connectString*, *query*, *outputString*[, *prompt*][, *columnNames*], *ref*())

The following table describes the arguments that you can use with this method.

Argument	Description
connectString	A string or string variable that specifies the data source. For more information on the connect string, see <a href="#">"ODBC Open Connection Method" on page 203</a> .
query	An SQL query statement that this method runs.
outputString	A string variable that holds the completed connection string.
prompt	An integer that specifies when to display the driver dialog box. For more information about using the prompt argument, see <a href="#">"ODBC Open Connection Method" on page 203</a> .
columnNames	An integer. If columnNames is not zero, then it returns column names in the first row of the array that the ref argument identifies. If you do not include the columnNames argument, then the default value is 0.
ref	An array of type variant that holds the results of the action you request. It must be an array even if it includes only one dimension with one element.

### Example

The following example uses the ODBC Run Query And Get Results method:

```

Function WebApplet_PreInvokeMethod (MethodName As String) As Integer
  If MethodName = "queryExtSys" Then

    ' The following opens the datasource SVBTESTW and
    ' runs the query specified by query and returns the
    ' results in destination.

    Dim errors(1 To 10, 1 To 3) As Variant
    Dim destination(1 To 50, 1 To 125) As Variant
    Dim prompt As Integer
    Dim outputStr As String
    Dim retCode As Integer

    ' In the event of a connection error, do not display a
    ' dialog box, return an error
    prompt = 4

    ' SQL Statement to submit. In this example we'll perform a
    ' simple select
    query = "SELECT * FROM authors"

    ' Invoke the SQLRequest function to submit the SQL, run the
    ' query and return a result set.
    retCode = SQLRequest("DSN=SVBTESTW;UID=sa;PWD=sa", _
      query, outputStr, prompt, 0, destination())

    ' If retCode < 0, an error has occurred. Retrieve the first
    ' error returned in the array and display to the user.
    If retCode < 0 Then
      SQLError destination := errors
      errCounter = 1

      while errors(errCounter,1) <> 0
        TheApplication.RaiseErrorText "Error " & _
          " ODBC error: " & destination(errCounter,1) & _
          " Numeric code = " & destination(errCounter,2) & _
          " Error Text = " & destination(errCounter,3)

        errCounter = errCounter + 1
      wend
    Else
      ' do some processing of the results
    End If

    WebApplet_PreInvokeMethod = CancelOperation
  Else
    WebApplet_PreInvokeMethod = ContinueOperation
  End If
End Function

```

## ODBC Save Results to File Method

This Siebel VB method gets the results of a query and stores them in a file. It returns one of the following values:

- **Successful.** It returns a variant that contains the number of rows that exist in the result set.
- **Not successful.** It returns -1 (negative one).

The arguments must be named arguments. For information about named arguments, see [“Comments” on page 29](#) and [“Call Subroutine Method” on page 98](#).

### Format

SQLRetrieveToFile(*connection*, *destination*[, *columnNames*][, *columnDelimiter*])

The following table describes the arguments that you can use with this method.

Argument	Description
connection	The long integer that the ODBC Open Connection method returns.
destination	A string or string variable that contains the file name and path to this file. This method stores the results in this file.
columnNames	This argument can include one of the following values: <ul style="list-style-type: none"> <li>■ <b>Not zero.</b> The first row contains the column headers according to database schema requirements.</li> <li>■ <b>0.</b> Does not get the column headers.</li> </ul> The default value is 0.
columnDelimiter	The string this method uses to separate each field in a row. If you do not include the columnDelimiter argument, then it uses a tab character to separate each field.

### Example

The following example opens a connection to a data source and saves information to a file:

```

sub Button_Click
    'Declarations

    Dim connection As Long
    Dim destination(1 To 50, 1 To 125) As Variant
    Dim retcode As long

    'open the connection

    connection = SQLOpen("DSN = sblTest",outputStr,prompt: = 3)

    ' Run the query
    
```



```

query = "select * from customer"
retcode = SQLExecQuery(connection,query)

'Place the results of the previous query in the file
'named by filename and put the column names in the file
'as the first row.
'The field delimiter is %

    filename = "c:\myfile.txt"
    columnDelimiter = "%"
    retcode = SQLRetrieveToFile(connection: = connection, _
    destination: = filename, columnNames: = 1, _
    columnDelimiter: = columnDelimiter)

    retcode = SQLClose(connection)

End Sub

```

## Object Querying Methods

This topic describes object querying methods. It includes the following topics:

- ["Compare Object Expressions Operator" on page 209](#)
- ["Is Expression a Date Method" on page 210](#)
- ["Is Object Of Class Method" on page 211](#)
- ["Is Optional Argument Missing Method" on page 211](#)
- ["Is Variable Null Method" on page 212](#)
- ["Is Variable Numeric Method" on page 213](#)
- ["Is Variable Set Method" on page 214](#)

## Compare Object Expressions Operator

The Compare Object Expressions operator compares two object expressions. It returns one of the following values:

- **-1 (negative one)**. The object expressions reference the same object.
- **0 (zero)**. The object expressions do not reference the same object.

You can use this method to determine if an object variable is set to Nothing. For more information, see ["Remove Object Method" on page 108](#).

### Format

*objectExpression Is objectExpression*

The following table describes the arguments that you can use with this method.

Argument	Description
objectExpression	Any valid object expression.

**Example**

For examples of using the Compare Object Expressions operator, see [“Date and Time Methods” on page 179](#) and [“Get COM Object Method” on page 233](#).

## Is Expression a Date Method

The Is Expression a Date method determines if an expression evaluates to a date that Siebel VB allows. It returns one of the following values:

- **-1 (negative one).** The expression is a date variable type or a string that Siebel VB can interpret as a date.
- **0 (zero).** The expression is not a date variable type or a string that Siebel VB can interpret as a date.

For more information, see [“Variants” on page 26](#).

**Format**

IsDate(*expression*)

The following table describes the arguments that you can use with this method.

Argument	Description
expression	Any valid expression.

**Example**

The following example adds a number to the current date value and determines if it is still a valid date. In this example, a valid date is in the range of January 1, 100, through December 31, 9999:

```

Sub Button_Click
    Dim curdatevalue
    Dim yrs
    Dim msgtext
    curdatevalue = DateValue(Date$)
    yrs = 20
    yrs = yrs * 365
    curdatevalue = curdatevalue + yrs
    If IsDate(curdatevalue) = -1 then
        msgtext = Format(CVDate(curdatevalue))
    Else

```

```

        "The date is not valid."
    End If
End Sub

```

## Is Object Of Class Method

The Is Object Of Class method determines if an object is of a given class. It returns one of the following values:

- **-1 (negative one)**. The object is of the type that the `className` argument specifies.
- **0 (zero)**. The object is not of the type that the `className` argument specifies.

You can use this method only in an If statement.

### Format

If Typeof *objectVariable* Is *className* Then...

You must use this format. You cannot combine this method with a Boolean operator.

The following table describes the arguments that you can use with this method.

Argument	Description
<code>objectVariable</code>	The object to be examined.
<code>className</code>	The class that Siebel CRM uses to compare the object.

You use the following format to determine if an object does not belong to a class:

```

If Typeof objectVariable Is className Then

    [Perform some action.]
Else
    [Perform some action.]
End If

```

## Is Optional Argument Missing Method

The Is Optional Argument Missing method determines if an optional argument for a procedure is missing. It returns one of the following values:

- **-1 (negative one)**. An optional argument is missing.
- **0 (zero)**. An optional argument is not missing.

### Format

IsMissing(*argname*)

The following table describes the arguments that you can use with this method.

Argument	Description
argname	An optional argument for a subroutine, function, Siebel VB statement, or Siebel VB method.

### Example

The following example prints a list of uppercase characters. The user determines the quantity printed. If the user must print every character, then this example calls the myfunc function without any argument. The function uses the Is Optional Argument Missing method to determine to print every uppercase character or to print only the quantity that the user specifies:

```
Function myfunc(Optional arg1)
  If IsMissing(arg1) = -1 then
    arg1 = 26
  End If
  msgtext = "The letters are: " & Chr$(10)
  For x = 1 to arg1
    msgtext = msgtext & Chr$(x + 64) & Chr$(10)
  Next x
End Function

Sub Button_Click
  Dim arg1
  arg1 = 0
  If arg1 = 0 then
    myfunc()
  Else
    myfunc(arg1)
  End If
End Sub
```

## Is Variable Null Method

The Is Variable Null method determines if a variant variable contains a Null value. It returns one of the following values:

- **-1 (negative one)**. The expression contains a Null value.
- **0 (zero)**. The expression does not contain a Null value.

A null variant does not contain data. It only identifies a result that is not valid or that is ambiguous. Null is not the same as Empty, which indicates that a variant is not yet set.

### Format

IsNull(*expression*)

The following table describes the arguments that you can use with this method.

Argument	Description
expression	Any expression that contains a variable of data type variant.

### Example

The following example asks for ten test score values and calculates the average. If any score is negative, then it sets the value to Null. This example uses the Is Variable Null method to reduce the total count of 10 scores to only the scores that contain a positive value before it calculates the average:

```

Sub Button_Click
  Dim arrayvar(10)
  Dim count as Integer
  Dim total as Integer
  Dim x as Integer
  Dim tscore as Single
  count = 10
  total = 0
  For x = 1 to count
    tscore = 88
    If tscore < 0 then
      arrayvar(x) = Null
    Else
      arrayvar(x) = tscore
      total = total + arrayvar(x)
    End If
  Next x
  Do while x <> 0
    x = x - 1
    If IsNull(arrayvar(x)) = -1 then
      count = count - 1
    End If
  Loop
  msgtext = "The average (excluding negative values) is: "
  msgtext = msgtext & Chr(10) & Format(total/count, "##.##")
End Sub

```

## Is Variable Numeric Method

The Is Variable Numeric method determines if the value of a variable is numeric. It returns one of the following values:

- **-1 (negative one).** The expression is a Numeric data type or is a string that Siebel VB can interpret as a number.
- **0 (zero).** The expression is not a Numeric data type or is not a string that Siebel VB can interpret as a number.

If numeric input is required, then you can use the Is Variable Numeric method to determine if the value that the user provides is a valid number before converting the input to a numeric data type.

For more information, see ["Variants" on page 26](#).

**Format**

IsNumeric(*expression*)

The following table describes the arguments that you can use with this method.

Argument	Description
expression	Any valid expression.

**Related Topics**

["Get Variant Type Method" on page 134](#)

## Is Variable Set Method

The Is Variable Set method determines if a variable of data type variant is set. To indicate that it contains no data, every new variant defaults to an Empty type. This method returns one of the following values:

- **-1 (negative one)**. The variant is set.
- **0 (zero)**. The variant is not set.

If you use an empty variant in a numeric expression or in a null string ("") in a string expression, then Siebel VB converts this empty variant to zero. For more information, see ["Variants" on page 26](#).

**Format**

IsEmpty(*expression*)

The following table describes the arguments that you can use with this method.

Argument	Description
expression	Any expression that identifies a variable of data type variant.

**Example**

The following example prompts the user for a series of test scores. It uses the Is Variable Set method to determine if Siebel CRM reached the maximum allowable limit. This method determines when to exit the Do Loop:

```

Sub Button_Click
    Dim arrayvar(10)
    Dim x as Integer
    Dim tscore as Single

```

```
Dim total as Integer
x = 1
Do
    tscore = 88
    arrayvar(x) = tscore
    x = x + 1
Loop Until IsEmpty(arrayvar(10)) <> -1
total = x-1
msgtext = "You entered: " & Chr(10)
For x = 1 to total
    msgtext = msgtext & Chr(10) & arrayvar(x)
Next x
End Sub
```

## Financial Methods

This topic describes financial methods. It includes the following topics:

- ["Overview of Financial Methods" on page 215](#)
- ["Calculate Future Value Method" on page 217](#)
- ["Calculate Interest Method" on page 217](#)
- ["Calculate Interest Rate Method" on page 218](#)
- ["Calculate Internal Rate of Return Method" on page 219](#)
- ["Calculate Net Present Value Method" on page 220](#)
- ["Calculate Payment Method" on page 220](#)
- ["Calculate Principal Method" on page 221](#)
- ["Calculate Present Value Method" on page 221](#)

## Overview of Financial Methods

This topic includes an overview of financial methods.

## Arguments You Can Use with Financial Methods

The following table describes arguments that you can use with financial methods. The topic for each method lists the arguments you can use with that method.

Argument	Description
due	An integer that specifies when payments are due. You can use one of the following values: <ul style="list-style-type: none"> <li>■ <b>0.</b> End of each period.</li> <li>■ <b>1.</b> Beginning of each period.</li> </ul>
fv	The future value of one of the following: <ul style="list-style-type: none"> <li>■ Final lump sum required in a savings plan</li> <li>■ Final lump sum paid, which is 0 in a loan</li> </ul>
guess	An estimate of the rate returned. This value is typically in the range of 0.1 (10 percent) through 0.15 (15 percent).
nper	The total number of payment periods.
per	The payment period, in the range of 1 through the value that the nper argument contains.
period	The specific payment period, in the range 1 through the value that the nper argument contains.
pmt	The constant periodic payment for each period.
pv	The present value or the initial lump sum of one of the following: <ul style="list-style-type: none"> <li>■ Amount paid for an annuity</li> <li>■ Amount received for a loan</li> </ul>
rate	The interest rate for each period. For more information, see <a href="#">"How Some Financial Methods Use the Rate Argument" on page 216.</a>
valuearray	An array that contains cash flow values. This argument must include at least one each of the following items: <ul style="list-style-type: none"> <li>■ A positive value that identifies a receipt</li> <li>■ A negative value that identifies a payment</li> </ul> <p>You must represent payments and receipts in the exact sequence that the method must use to calculate them. The value that the method returns varies according to the modification that occurs in the sequence of cash flows.</p>

## How Some Financial Methods Use the Rate Argument

Some financial methods assume that the value that the rate argument includes is constant over the life of the annuity.



For example, if payments are on a monthly schedule, and if the annual percentage rate on the annuity or loan is 9%, then the rate is 0.0075 (.0075 equals .09 divided by 12).

## Calculate Future Value Method

The Calculate Future Value method calculates, and then returns a number that identifies the future value of an investment, such as an annuity or a loan.

### Format

*FV(rate, nper, pmt, pv, due)*

For more information, see ["Arguments You Can Use with Financial Methods"](#) on page 216.

### Example

The following example calculates the future value of an annuity, according to terms that the user specifies:

```
Sub Button_Click
  Dim aprate, periods
  Dim payment, annuitypv
  Dim due, futurevalue
  Dim msgtext
  annuitypv = 100000
  aprate = 6.75
  If aprate >1 then
    aprate = aprate/100
  End If
  periods = 60
  payment = 10000
  ' Assume payments are made at end of month
  due = 0
  futurevalue = FV(aprate/12,periods,-payment,-annuitypv,due)
  msgtext = "The future value is: " & Format(futurevalue, "Currency")
End Sub
```

## Calculate Interest Method

The Calculate Interest method calculates, and then returns the interest portion of a payment for a given period of an annuity.

### Format

*IPmt(rate, period, nper, pv, fv, due)*

For more information, see ["Arguments You Can Use with Financial Methods"](#) on page 216.

**Example**

The following example calculates the interest portion of a loan payment amount for payments made in the last month of the first year. The loan is for \$25,000 to be paid back over 5 years at 9.5% interest:

```

Sub Button_Click
    Dim aprate, periods
    Dim payperiod
    Dim loanpv, due
    Dim loanfv, intpaid
    Dim msgtext
    aprate = .095
    payperiod = 12
    periods = 120
    loanpv = 25000
    loanfv = 0
    ' Assume payments are made at end of month
    due = 0
    intpaid = IPmt(aprate/12,payperiod,periods, _
    loanpv,loanfv,due)
    msgtext = "For a loan of $25,000 @ 9.5% for 10 years," _
    & Chr(10)
    msgtext = msgtext + "the interest paid in month 12 is: " _
    & Format(intpaid, "Currency")
End Sub

```

**Calculate Interest Rate Method**

The Calculate Interest Rate method calculates, and then returns the interest rate for each period for an annuity or a loan. This method is iterative. It improves a guess over multiple iterations until the result is within 0.00001 percent. If it does not converge to a result in 20 iterations, then it displays a failure message.

**Format**

Rate(*nper*, *pmt*, *pv*, *fv*, *due*, *guess*)

For more information, see ["Arguments You Can Use with Financial Methods"](#) on page 216.

**Example**

The following example calculates the interest rate on a 10 year, \$25,000 annuity that pays \$100 for each month:

```

Sub Button_Click
    Dim aprate
    Dim periods
    Dim payment, annuitypv
    Dim annuityfv, due
    Dim guess
    Dim msgtext as String

```

```

periods = 120
payment = 100
annuitypv = 0
annuityfv = 25000
guess = .1
' Assume payments are made at end of month
due = 0
aprate = Rate(periods,-payment,annuitypv,annuityfv, _
due, guess)
aprate = (aprate * 12)
msgtext = "The percentage rate for a 10-year $25,000 _
annuity"
msgtext = msgtext & "that pays $100/month has "
msgtext = msgtext & "a rate of: " & Format(aprate, _
"Percent")
End Sub

```

## Calculate Internal Rate of Return Method

The Calculate Internal Rate of Return method calculates, and then returns the internal rate of return for a stream of periodic cash flows. This method is iterative. It improves a guess over multiple iterations until the result is within 0.00001 percent. If it does not converge to a result in 20 iterations, then it displays a failure message.

### Format

`IRR(valuearray( ), guess)`

For more information, see ["Arguments You Can Use with Financial Methods"](#) on page 216.

### Example

The following example calculates an internal rate of return for a series of income and cost business transactions. It expresses this rate of return as an interest rate percentage. If the first value entered is a positive amount, then the IRR statement creates an Illegal Function Call error:

```

Sub Button_Click
Dim cashflows() as Double
Dim guess, count as Integer
Dim i as Integer
Dim intn1 as Single
Dim msgtext as String
guess = .15
count = 2
ReDim cashflows(count + 1)
For i = 0 to count-1
    cashflows(i) = 3000
Next i
intn1 = IRR(cashflows(),guess)

```

```
msgtext = "The IRR for your cash flow amounts is: "  
msgtext = msgtext & Format(intn1, "Percent")  
End Sub
```

## Calculate Net Present Value Method

The Calculate Net Present Value method calculates, and then returns the net present value of an investment according to a stream of periodic cash flows and a constant interest rate. This method does the following:

- Returns the net present value in the `valuearray` argument according to the value that the `rate` argument contains.
- Uses future cash flows as the basis for the net present value calculation. If the first cash flow occurs at the beginning of the first period, then you must add this cash flow value to the result that this method returns. You must not include this value in the `valuearray` argument.

The value that the `rate` argument contains is the decimal equivalent of the discount rate. For example, if the discount rate is 12%, then the `rate` is 0.12.

### Format

`NPV(rate, valuearray( ))`

The `rate` argument for this method describes the discount rate for each period. For a description of the `valuearray` argument, see ["Arguments You Can Use with Financial Methods" on page 216](#).

## Calculate Payment Method

The Calculate Payment method calculates, and then returns a constant periodic payment amount for an annuity or a loan.

### Format

`Pmt(rate, nper, pv, fv, due)`

For more information, see ["Arguments You Can Use with Financial Methods" on page 216](#).

### Example

The following example calculates the monthly payment for a given loan:

```
Sub Button_Click  
Dim aprate, totalpay  
Dim loanpv, loanfv  
Dim due, monthypay  
Dim yearypay, msgtext  
loanpv = 25000  
aprate = 7.25  
If aprate >1 then
```

```

        aprate = aprate/100
    End If
    totalpay = 60
    loanfv = 0
    'Assume payments are made at end of month
    due = 0
    monthlypay = Pmt(aprate/12,totalpay,-loanpv,loanfv,due)
    msgtext = "The monthly payment is: " & Format(monthlypay, "Currency")
End Sub

```

## Calculate Principal Method

The Calculate Principal method calculates, and then returns the principal portion of the payment for a given period of an annuity.

### Format

*PPmt(rate, per, nper, pv, fv, due)*

For more information, see ["Arguments You Can Use with Financial Methods"](#) on page 216.

### Example

The following example calculates the principal portion of a loan payment amount for payments made in the last month of the first year. The loan is for \$25,000 to be paid back over 5 years at 9.5% interest:

```

Sub Button_Click
    Dim aprate, periods
    Dim payperiod
    Dim loanpv, due
    Dim loanfv, principal
    Dim msgtext
    aprate = 9.5/100
    payperiod = 12
    periods = 120
    loanpv = 25000
    loanfv = 0
    ' Assume payments are made at end of month
    due = 0
    principal = PPmt(aprate/12,payperiod,periods, _
        -loanpv,loanfv,due)
    msgtext = "Given a loan of $25,000 @ 9.5% for 10 years,"
    msgtext = msgtext & Chr(10) & "the principal paid in month 12 is: "
End Sub

```

## Calculate Present Value Method

The Calculate Present Value method calculates, and then returns the present value of a constant periodic stream of cash flows as in an annuity or a loan.

**Format**

*PV(rate, nper, pmt, fv, due)*

For more information, see [“Arguments You Can Use with Financial Methods” on page 216.](#)

**Example**

The following example calculates the present value of a 10 year, \$25,000 annuity that pays \$1,000 for each year at 9.5%:

```
Sub Button_Click
    Dim aprate As Integer, periods As Integer
    Dim payment As Double, annuityfv As Double
    Dim due As Integer, presentvalue As Double
    Dim msgtext
    aprate = 9.5
    periods = 120
    payment = 1000
    annuityfv = 25000
    ' Assume payments are made at end of month
    due = 0
    presentvalue = PV(aprate/12,periods,-payment, annuityfv,due)
    msgtext = "The present value for a 10-year $25,000 annuity @ 9.5%"
    msgtext = msgtext & " with a periodic payment of $1,000 is: "
    msgtext = msgtext & Format(presentvalue, "Currency")
End Sub
```

## Conversion Methods

This topic describes conversion methods. It includes the following topics:

- [“Convert Expression to Currency Method” on page 223](#)
- [“Convert Expression to Double-Precision Method” on page 224](#)
- [“Convert Expression to Integer Method” on page 224](#)
- [“Convert Expression to Long Method” on page 225](#)
- [“Convert Expression to Single-Precision Method” on page 226](#)
- [“Convert Expression to String Method” on page 227](#)
- [“Convert Expression to Variant Method” on page 227](#)

### Argument That You Can Use with Conversion Methods

The following table describes the arguments that you can use with conversion methods.

Argument	Description
expression	Any expression that evaluates to a number.

## Convert Expression to Currency Method

The Convert Expression to Currency method converts the value that the expression argument contains to a currency. It returns this currency. Note the following:

- A number that does not fit in the currency data type causes an Overflow error.
- A string that cannot convert to a currency causes a Type Mismatch error.
- A variant that contains a null result causes an Illegal Use of Null error.

For more information, see ["Overview of Data Types" on page 22](#).

### Format

`CCur(expression)`

For information about the arguments that you can use with this method, see ["Argument That You Can Use with Conversion Methods" on page 222](#).

### Example

The following example converts a yearly payment on a loan to a currency value with four decimal places. A subsequent Format statement formats the value to two decimal places before displaying it in a message box:

```
Sub Button_Click
Dim aprate, totalpay, loanpv
Dim loanfv, due, monthlypay
Dim yearlypay, msgtext
loanpv = 5000
aprate = 6.9
If aprate >1 then
    aprate = aprate/100
End If
aprate = aprate/12
totalpay = 360
loanfv = 0
Rem Assume payments are made at end of month
due = 0
monthlypay = Pmt(aprate,totalpay,-loanpv,loanfv,due)
yearlypay = CCur(monthlypay * 12)
msgtext = "The yearly payment is: " & _
    Format(yearlypay, "Currency")
End Sub
```

### Related Topics

["Get ANSI String Method" on page 145](#)

["Convert Number to Date Method" on page 180](#)

## Convert Expression to Double-Precision Method

The Convert Expression to Double-Precision method converts the value that the expression argument contains to a double-precision number. It returns this number. Note the following:

- A string that cannot convert to a double-precision floating point number causes a Type Mismatch error.
- A variant that contains a null result causes an Illegal Use of Null error.

For more information, see ["Numeric Data Types That Siebel VB Uses" on page 25](#).

### Format

`Cdbl(expression)`

For information about the arguments that you can use with this method, see ["Argument That You Can Use with Conversion Methods" on page 222](#).

### Example

The following example calculates the square root of 2 as a double-precision, floating-point value and displays it in scientific notation:

```
Sub Button_Click
  Dim value
  Dim msgtext
  value = Cdbl(Sqr(2))
  msgtext = "The square root of 2 is: " & value
End Sub
```

## Convert Expression to Integer Method

The Convert Expression to Integer method converts the value that the expression argument contains to an integer and rounds the result. It returns this result. Note the following:

- After rounding, the result must reside in the range of negative 32767 to 32767. If it is not, then an error occurs.
- A string that cannot convert to an integer causes a Type Mismatch error.
- A variant that contains a null result causes an Illegal Use of Null error.

For more information, see ["Numeric Data Types That Siebel VB Uses" on page 25](#).

### Format

`CInt(expression)`

For information about the arguments that you can use with this method, see ["Argument That You Can Use with Conversion Methods" on page 222](#).



**Example**

The following example calculates the average of ten golf scores:

```
Sub Button_Click
  Dim score As Integer
  Dim x, sum
  Dim msgtext
  Let sum = 0
  For x = 1 to 10
    score = 7-
    sum = sum + score
  Next x
  msgtext = "Your average is: " & _
    Format(CInt(sum/ (x - 1)), "General Number")
End Sub
```

**Convert Expression to Long Method**

The Convert Expression to Long method converts the value that the expression argument contains to a long number. It returns this number. Note the following:

- After rounding, the result must reside in the range of negative 32767 to 32767. If it is not, then an error occurs.
- A string that cannot convert to a long number causes a Type Mismatch error.
- A variant that contains a null result causes an Illegal Use of Null error.

For more information, see ["Numeric Data Types That Siebel VB Uses" on page 25](#).

**Format**

*CLng(expression)*

For information about the arguments that you can use with this method, see ["Argument That You Can Use with Conversion Methods" on page 222](#).

**Example**

The following example divides the national debt of the United States by the number of people who live in this country to find the amount of money each person must pay to retire this debt. It converts this number to a long integer, and then formats it as currency:

```
Sub Button_Click
  Dim debt As Single
  Dim msgtext
  Const Populace = 311000000
  debt = 14000000000000
  msgtext = "The $/citizen is: " & _
    Format(CLng(Debt/ Populace), "Currency")
End Sub
```

## Convert Expression to Single-Precision Method

The Convert Expression to Single-Precision method converts the value that the expression argument contains to a single-precision, floating-point number. It returns this number. Note the following:

- After rounding, the result must reside in the range that the single-precision data type allows. If it is not, then an error occurs.
- A string that cannot convert to a single-precision number causes a Type Mismatch error.

For more information, see ["Numeric Data Types That Siebel VB Uses" on page 25](#).

### Format

CSng(*expression*)

For information about the arguments that you can use with this method, see ["Argument That You Can Use with Conversion Methods" on page 222](#).

### Example

The following example calculates the factorial of a number. For more information, see ["About the Factorial" on page 168](#):

```

Sub Button_Click
  Dim number as Integer
  Dim factorial as Double
  Dim msgtext As String
  number = 25
  If number <= 0 then
    Exit Sub
  End If

  factorial = 1
  For x = number to 2 step -1
    factorial = factorial * x
  Next x
  'If number <= 35, then its factorial is small enough to
  ' be stored as a single-precision number
  If number < 35 then
    factorial = CSng(factorial)
  End If
  msgtext = "The factorial of " & number & " is " & factorial
End Sub

```

## Convert Expression to String Method

The Convert Expression to String method converts an expression to a string. It returns one of the values described in the following table depending on the data type of the expression.

Data Type of Expression	Return Value
Date	A string that contains a date.
Empty	A zero-length string ("").
Error	A string that contains the following information: <i>Error error number</i>
Null	A run-time error.
Other Numeric	A string that contains the number.

### Format

`CStr(expression)`

For information about the arguments that you can use with this method, see ["Argument That You Can Use with Conversion Methods"](#) on page 222.

### Example

The following example uses the Convert Expression to String method to operate on a string that the user enters as a number:

```
Sub Button_Click
    Dim var1, msgtext as String, code as Integer
    var1 = 77

    msgtext = Cstr(var1)
    msgtext = Left(var1,1)
    code = Asc(msgtext)

    msgtext = "The first digit you entered was," & msgtext
    msgtext = msgtext & ". Its ANSI code is " & code & "."
End Sub
```

## Convert Expression to Variant Method

The Convert Expression to Variant method converts an expression to a variant. It returns this variant. It accepts any type of expression. It creates the same result that assigning the expression to a variant variable creates.

### Format

`CVar(expression)`

For information about the arguments that you can use with this method, see [“Argument That You Can Use with Conversion Methods”](#) on page 222.

### Example

The following example converts a single variable to a variant variable:

```
Sub Button_Click
    Dim singleAnswer as Single
    Dim variantAnswer as Variant
    singleAnswer = 100.5
    variantAnswer = CVar(singleAnswer )
end Sub
```

## COM Methods

This topic describes COM methods. It includes the following topics:

- [“Assign COM Object Statement”](#) on page 228
- [“COM Object Class”](#) on page 230
- [“Create COM Object Method”](#) on page 231
- [“Get COM Object Method”](#) on page 233
- [“Initialize COM Object Method”](#) on page 235

## Assign COM Object Statement

The Assign COM Object statement assigns a COM object, such as an application, to a variable. In Siebel Tools, you can use it to create an instance of a Siebel object. It does not return a value. The Assign COM Object statement differs from the Let statement. The Let statement assigns an expression to a Siebel VB variable. For example:

- **Set o1 = o2.** Sets the object reference.
- **Let o1 = o2.** Sets the value of the default member.

### Format

Set *variableName* = *objectExpression*

The following table describes the arguments that you can use with this method.

Argument	Description
variableName	An object variable or variant variable.
objectExpression	An expression that evaluates to an object. This object is typically one of the following items: <ul style="list-style-type: none"> <li>■ Function</li> <li>■ Object member</li> <li>■ Nothing</li> </ul>

### Including the Set Keyword When You Assign an Object Variable

If you do not include the Set keyword when you assign an object variable, then Siebel VB attempts to copy the default member of one object to the default member of another object. This situation typically results in the following run-time error:

```
' Incorrect code - tries to copy default member!
COMObject = GetObject("", "spoly.cpoly")
```

### Example 1

The following example uses the Assign COM Object statement:

```
Dim COMObject As Object
Set COMObject = CreateObject("spoly.cpoly")
COMObject.reset
```

### Example 2

The following example creates an Opportunity business component outside the context of the user interface. The code prevents the user from deleting an account if there are opportunities associated with it. For more information about the Siebel VB methods and objects that this example uses, see *Siebel Object Interfaces Reference*:

```
Function BusComp_PreDeleteRecord As Integer

    Dim iReturn as integer
    Dim oBC as BusComp
    Dim oBO as BusObject
    Dim sAcctRowId as string
    iReturn = ContinueOperation
    sAcctRowId = me.GetFieldValue("Id")

    set oBO = theApplication.GetBusObject("Opportunity")
    set oBC = oBO.GetBusComp("Opportunity")

    With oBC
        .SetViewMode AllView
        .ActivateField "Account Id"
        .ClearToQuery
    End With
End Function
```

```

        .SetSearchSpec "Account Id", sAcctRowId
        .ExecuteQuery ForwardOnly
        if (.FirstRecord) = 1 then
            'Opportunities exist for the Account - Delete is not allowed
            iReturn = CancelOperation
        end if
    End With

    BusComp_PreDeleteRecord = iReturn
    Set oBC = Nothing
    Set oBO = Nothing

End Function

```

## COM Object Class

The COM Object class provides access to a COM object. It does not return a value. To create a new object, you use the Dim statement to dimension a variable, and then set the variable to the return value of CreateObject or GetObject. For example:

```

Dim COM As Object
Set COM = CreateObject("spoly.cpoly")

```

You can use one of the following formats to reference a method or property of the new object:

```

objectvar.property
objectvar.method

```

For example:

```

COM.reset

```

### Format

```

Dim variableName As Object

```

The following table describes the arguments that you can use with this method.

Argument	Description
variableName	The name of the object variable to declare.

### Example

The following example uses the BusComp object class to declare the variables that Siebel VB uses to access the Account Contacts view in a Siebel application:

```

Sub Button1_Click
    Dim i as integer
    Dim icount as integer
    Dim oBC as BusComp

```

```

' BusObject returns the business object associated with a
' control or applet.
' GetBusComp returns a reference to a Siebel
' business component that is in the UI context

set oBC = me.BusObject.GetBusComp("Contact")

i = oBC.FirstRecord ' returns 0 if fails, 1 if succeeds
if i <> 1 then
    TheRaiseErrorText "Error accessing contact records for the account."
else
    icount = 0
    ' NextRecord returns 1 if it successfully
    ' moved to the next record in the BC
    while i = 1
        icount = icount + 1
        i = oBC.NextRecord ' returns 1 if successful
    wend
    oBC.FirstRecord
end if
End Sub

```

## Create COM Object Method

The Create COM Object method creates a new COM object. It does not return a value.

### Format

`CreateObject(application.objectname)`

The following table describes the arguments that you can use with this method.

Argument	Description
application	The name of the application.
objectname	The name of the object that this method uses.

### Usage

To create an object, you use the Dim statement to declare an object variable, and then set the variable equal to the new object. For example:

```

Dim excelObj As Object
Set excelObj = CreateObject("Excel.Application")

```

You can use one of the following formats to reference a method or property of the object:

```

objectvar.property
objectvar.method

```

For example:

```
Dim cellVal as String
cellVal = excelObj.ActiveSheet.Cells(1,1).Value
```

You cannot display a modal or nonmodal form from a server application. A DLL that this method instantiates must be thread-safe.

To identify correct application and object names, see the documentation for your Web Client Automation Server application.

**CAUTION:** If a method passes the wrong number, order, or type of arguments to a COM object when it calls a COM object, then a 440 error message might occur.

### Example 1

The following example uses the Create COM Object method to create a Microsoft Excel worksheet. It then edits and saves this worksheet:

```
Sub BtnExcel_Click
    Dim oworksheet As Object
    Dim sfileName As String
    Set oworksheet = CreateObject("Excel.Sheet")
    If oworksheet Is Nothing then
        Exit Sub
    End If

    ' Make Excel visible through the Application object.
    oworksheet.Application.Visible = 1
    ' Place some text in the first cell of the sheet
    oworksheet.ActiveSheet.Cells(1,1).Value = "Column A, Row 1"
    ' Save the sheet
    sfileName = "C:\demo.xls"
    oworksheet.SaveAs (sfileName)
    ' Close Excel with the Quit method on the Application object
    oworksheet.Application.Quit
    ' Clear the object from memory
    Set oworksheet = Nothing
End Sub
```

### Example 2

The following example uses the Create COM Object method to create a Microsoft Word document. It then edits and saves this document:

```
Sub Btnword_Click
    Dim oword As Object
    Dim fileName As String
    fileName = "C:\demo.doc"
    Set oword = CreateObject("Word.Application")
    ' Create a new document
    oword.Documents.Add
    If oword Is Nothing then
        Exit Sub
    End If
    ' Make word visible through the Application object
```



```

oWord.Application.Visible = 1
' Add some text
oWord.Selection.TypeText "This is a demo."
' Save the document
oWord.ActiveDocument.SaveAs (fileName)
' Close Word with the Quit method on the Application object
oWord.Quit
' Clear the object from memory
Set oWord = Nothing
End Sub

```

## Get COM Object Method

The Get COM Object method returns the COM object that the pathname argument or the class argument identifies. To assign a variable to an object for use in a Visual Basic procedure, you dimension a variable as an object, and then use the Get COM Object method with the Assign COM Object statement.

The examples in this topic reference the SiebelAppServer object, which you define as an object type in your external Visual Basic environment.

### Format A

```
GetObject(pathname)
```

### Format B

```
GetObject(pathname, class)
```

### Format C

```
GetObject(, class)
```

### Arguments

The following table describes the arguments that you can use with this method.

Argument	Description
pathname	The full path and file name for the object to get.
class	A string that contains the class of the object.

### Usage for Format A

You can use format A to access a COM object that is stored in a file. For example, the following code dimensions a variable as an object and assigns the payables.xls object to this variable. The Payables.xls file is located in the My Documents directory:

```

Dim oFileObject As Object
Set oFileObject = GetObject("C:\My Documents\payables.xls")

```

If the Siebel application supports accessing component objects in the file, then you can append an exclamation point and a component object name to the file name. For example:

```
Dim oComponentObject As Object
Set oComponentObject = _
    GetObject("C:\My Documents\payables.xls!R1C1: R13C9")
```

### Usage for Format B

You can use format B to access a COM object of a particular class that is stored in a file. The class argument uses the following format:

```
appName.objectType
```

where:

- *appName* is the name of the application that provides the object
- *objectType* is the type or class of the object

For example:

```
Dim oClassObject As Object
Set oClassObject = GetObject("C:\My _
    Documents\payables.xls", "Excel.Sheet")
```

### Usage for Format C

You can use format C to access the active COM object of a particular class. For example:

```
Dim oApplication As _
    SiebelHTMLApplication
Set oApplication = _
    GetObject("SiebelHTML.SiebelHTMLApplication.1")
```

If you use format C with a null string ("" ) in the pathname argument, then Siebel VB returns a new object instance of the class that you specify in the class argument. The preceding example gets an open instance of the Siebel application. The following example instantiates the Siebel application in memory, independent of the user interface:

```
Set oApplication = _
    GetObject("", "SiebelHTML.SiebelHTMLApplication.1")
```

### Example

The following example opens an Excel worksheet and places the contents of the Name field of the active business component in this worksheet. The worksheet file must already exist:

```
Sub Button1_Click
    Dim ExcelSheet As Object
    Set ExcelSheet = GetObject("C:\demo\test.xls")

    'Make Excel visible through the Application object.
    ExcelSheet.Application.Visible = 1
```

```

'Place some text in the first cell of the sheet.
ExcelSheet.ActiveSheet.Cells(1, 1).Value = _
    theApplication.ActiveBusComp.GetFieldValue("Name")

'Save the sheet.
ExcelSheet.Save
'Close Excel with the Quit method on the Application object.
    +ExcelSheet.Application.Quit
End Sub

```

## Initialize COM Object Method

The Initialize COM Object method allocates and initializes a new COM object. It does not return a value.

In the Declare Variable statement, the New argument instructs Siebel VB to allocate and set a new COM object the first time it encounters the object that the objectVar argument identifies. If the code does not reference this object, then it does not allocate a new object.

The Initialize COM Object method does not create a COM object until the first time Siebel eScript uses this object. If Siebel eScript never uses this object, then this method does not create the object. The Create COM Object method creates the object as soon as you call this method. For more information, see ["Create COM Object Method" on page 231](#).

If the objectVar argument contains Nothing, and if you declare an object variable, and if you reference this object again, then New allocates a second object. For more information, see ["Remove Object Method" on page 108](#).

### Format

```

Set objectVar = New className
Dim objectVar As New className

```

The following table describes the arguments that you can use with this method.

Argument	Description
objectVar	The COM object to allocate and initialize.
className	The class to assign to the object.

## Error Handling Methods

This topic describes error handling methods. It includes the following topics:

- ["Get Error Code Method" on page 236](#)
- ["Get Error Code Line Method" on page 236](#)
- ["Get Error Message Method" on page 237](#)
- ["On Error Method" on page 238](#)

- ["Resume Statement" on page 239](#)
- ["Set Error Code Method" on page 240](#)
- ["Simulate Error Method" on page 241](#)

## Get Error Code Method

The Get Error Code method returns the error code of the last Visual Basic error handled. You can use the Err statement or the Error statement to set the value for this method.

You cannot use the Get Error Code method to view a Siebel VB error. Instead, you use the appropriate method for the COM or ActiveX Siebel interface that you are using. For more information, see *Siebel Object Interfaces Reference*.

For more information, see ["Error Code and Error Text for Siebel VB Errors" on page 52](#).

### Format

Err

This method does not include arguments.

### Example

For examples, see ["Get Error Code Line Method" on page 236](#) and ["Get Error Message Method" on page 237](#).

## Get Error Code Line Method

The Get Error Code Line method returns a number that identifies the code line where an error occurred. If you use a Resume statement or an On Error statement after you use this method, then this method sets the return value to 0. To maintain the value of the line number, you must assign it to a variable. You can use the Error statement to set this return value.

### Format

Err

This method does not include arguments.

### Example

The following example uses the Err statement to print the error number and the Erl statement to print the line number if an error occurs during an attempt to open a file. Siebel VB assigns line numbers, starting with 1. In this example the Sub Button\_Click statement is line 1:

```
Sub Button_Click
    Dim msgtext, userfile
    On Error GoTo Debugger
```

```

msgtext = "Enter the filename to use:"
userfile = "c:\temp\trace.txt"
Open userfile For Input As #1
' ....etc....
Close #1
done:
Exit Sub

Debugger:
msgtext = "Error number " & Err & " occurred at line: " & Er1
Resume done
End Sub

```

## Get Error Message Method

The Get Error Message method returns the error message that corresponds to an error code. If it does not find an error message that matches the error code, then it returns a null string (""). For more information, see ["Error Code and Error Text for Siebel VB Errors" on page 52](#).

### Format

Error[\$] [(*errornumber*)]

For information about the dollar sign, see ["Usage of the Dollar Sign" on page 56](#).

The following table describes the arguments that you can use with this method.

Argument	Description
errornumber	An integer in the range of 1 through 32,767 that identifies an error code. If you do not include this argument, then Siebel VB returns the error message of the run-time error that occurred most recently.

### Example

The following example uses the Err statement to print the error number and the text of the error. If an error occurs during an attempt to open a file, then it uses the Error\$ statement:

```

Sub Button_Click
Dim msgtext, userfile
On Error GoTo Debugger
msgtext = "Enter the filename to use:"
userfile = "c:\temp\trace.txt"
Open userfile For Input As #1
' ....etc....
Close #1
done:
Exit Sub
Debugger:

```

```

    msgtext = "Error " & Err & ": " & Error$
    Resume done
End Sub

```

## On Error Method

The On Error method identifies the location of code that handles an error. It does not return a value. You can also use it to disable code that handles the error. If you do not use the On Error method, and if a run-time error occurs, then Siebel VB stops running code.

### Format

On Error {GoTo *label* | Resume Next | GoTo 0}

The following table describes that parts of an On Error statement. You can include only one of these parts.

Part	Description
GoTo <i>label</i>	Identifies the code that handles the error that starts at the label argument. If this label does not reside in the same procedure as the On Error statement, then Siebel VB creates an error message.
Resume Next	Identifies the code to run after handling the error. It typically identifies the code that occurs immediately after the statement that caused the error. You can use the Err statement to get the error code of the run-time error at this point in the error handling.
GoTo 0	Disables any error handler that is enabled.

### Usage

Note the following:

- If an On Error GoTo *label* statement references an error handler, then that error handler is enabled.
- If an error handler is enabled, and if a run-time error occurs, then Siebel VB gives control to the code that includes this error handler. The error handler remains active from the time the run-time error is handled until code flow encounters a Resume statement in the error handler.
- If another error occurs while the error handler is active, then Siebel VB searches for the error handler in the procedure that called the current procedure:
  - If it find this error handler, then it stops the current procedure and activates the error handler in the calling procedure.
  - If it does not find this error handler, then it searches for a handler that resides in the procedure that called the calling procedure, and so on.

Because Siebel VB searches in the caller for an error handler, it ignores any On Error statements that exist in the original error handler.

- Running an End Sub or End Method statement while an error handler is active creates a No Resume error. You can use the Exit Sub or Exit Method statement to end the error condition and exit the current procedure.

### Example

The following example prompts the user for a drive and directory name. It uses the On Error method to handle an entry that is not valid:

```
Sub Button_Click
    Dim userdrive, userdir, msgtext
in1:
    userdrive = "c:"
    On Error Resume Next
    ChDrive userdrive
    If Err = 68 then
        Goto in1
    End If
in2:
    On Error Goto Errhdlr1
    userdir = "temp"
    ChDir userdrive & userdir
    userdir
    Exit Sub
Errhdlr1:
    Select Case Err
        Case 75
            msgtext = "Path is invalid."
        Case 76
            msgtext = "Path not found."
        Case 70
            msgtext = "Permission denied."
        Case Else
            msgtext = "Error " & Err & ": " & Error$ & "occurred."
    End Select
    Resume in2
End Sub
```

## Resume Statement

The Resume statement stops the code that handles an error, and then passes control to the statement that immediately follows the statement where the error occurred. It does not return a value.

If you use Resume [0], then control passes to the statement where the error occurred.

The location of the error handler that handles the error determines where code resumes:

- If the error is located in the same procedure as the error handler, then code flows to the statement that caused the error.

- If the error is not located in the same procedure as the error handler, then code flows to the statement that last called the procedure that contains the error handler.

**Format A**

Resume Next

**Format B**

Resume *label*

**Format C**

Resume [0]

**Arguments**

The following table describes the arguments that you can use with this method.

Argument	Description
label	The label that identifies the code line to go to after handling an error.

## Set Error Code Method

The Set Error Code method sets a run-time error code. It does not return a value. You can use it to send error information between procedures.

**Format**

Err = *errornumber*

The following table describes the arguments that you can use with this method.

Argument	Description
errornumber	An integer in the range of 1 through 32,767 that identifies an error code, or a 0 if no error occurs.

**Example**

The following example creates an error code of 10000 and displays an error message if the user does not enter a customer name in reply to a prompt. It uses the Err statement to clear any previous error codes before it runs the loop for the first time. It also clears the error to allow the user to try again:

```
Sub Button_Click
    Dim custname as String
    On Error Resume Next
    Do
        Err = 0
```



```

    custname = "Acme Inc."
    If custname = "" then
        Error 10000
    Else
        Exit Do
    End If
    Select Case Err
        Case 10000
            TheApplication.RaiseErrorText "You must enter a customer name."
        Case Else
            TheApplication.RaiseErrorText "Undetermined error. Try again."
    End Select
    Loop Until custname <> ""
    TheApplication.RaiseErrorText "The name is: " & custname
End Sub

```

For another example, see ["Set Error Code Method" on page 240](#).

## Simulate Error Method

The Simulate Error method simulates the occurrence of an error. Note the following:

- If an Error statement runs, and if code to handle the error does not exist, then Siebel VB creates an error message and stops code from running.
- If an Error statement specifies an error code that Siebel VB does not use, then it displays the following error message:

User-defined error

### Format

Error *errornumber*

The following table describes the arguments that you can use with this method.

Argument	Description
errornumber	An integer in the range of 1 through 32,767 that identifies an error code. If Siebel VB already uses an error number that the errornumber argument identifies, then the Error statement simulates an occurrence of that error.

### Using a Custom Error Code

A custom error code must use a value that is greater than any value that Siebel VB uses for a predefined error code. To avoid using a predefined error code, it is recommended that the value you use for a custom error code start with 32,767. For subsequent custom error codes, you can work down from 32,767.

**CAUTION:** Do not use any error code in the range of 4000 through 4999. These are predefined codes for Siebel VB methods. For more information, see [Siebel Object Interfaces Reference](#).



# 5

## Quick Reference for Siebel VB Methods

This quick reference section lists Siebel VB methods. It includes the following topics:

- [Disk and Directory Control Quick Reference on page 243](#)
- [File Control Quick Reference on page 244](#)
- [File Input and Output Quick Reference on page 245](#)
- [Code Setup and Control Quick Reference on page 246](#)
- [Code Control Statements Quick Reference on page 246](#)
- [Variable Manipulation Quick Reference on page 247](#)
- [Strings Quick Reference on page 248](#)
- [Arrays Quick Reference on page 249](#)
- [Math Operations Quick Reference on page 249](#)
- [Date and Time Quick Reference on page 250](#)
- [ODBC Quick Reference on page 251](#)
- [Object Querying Quick Reference on page 252](#)
- [Financials Quick Reference on page 252](#)
- [Conversions Quick Reference on page 253](#)
- [COM Object Quick Reference on page 254](#)
- [Error Handling Quick Reference on page 254](#)

### Disk and Directory Control Quick Reference

The following table lists methods that you can use to control disks and directories.

Statement	Purpose	Reference
ChDir	Modifies the default directory for a drive.	<a href="#">"Change Directory Method" on page 56</a>
ChDrive	Modifies the default drive.	<a href="#">"Change Drive Method" on page 57</a>
CurDir	Returns the current directory for a drive.	<a href="#">"Get Current Directory Method" on page 59</a>
MkDir	Creates a directory.	<a href="#">"Create Directory Method" on page 58</a>
Rmdir	Removes a directory.	<a href="#">"Remove Directory Method" on page 60</a>

## File Control Quick Reference

The following table lists methods that you can use to control files.

Statement	Purpose	Reference
Close	Closes a file.	"Close File Method" on page 63
Dir	Returns a file name that matches a pattern.	"Get File Names Method" on page 71
FileAttr	Returns the file mode or the operating system handle for an open file.	"Get File Mode Method" on page 70
FileCopy	Copies a file.	"Copy File Method" on page 64
FileDateTime	Returns the last modification date and time of a file.	"Get File Date Method" on page 67
FileLen	Returns the length of a file.	"Get File Length 2 Method" on page 69
FreeFile	Returns the next unused file number.	"Get Free File Number Method" on page 72
GetAttr	Returns attributes of a file, directory, or volume label.	"Get File Attributes Method" on page 66
Kill	Deletes a file.	"Delete File Method" on page 65
Lock	Controls access to an open file.	"Lock File Method" on page 73
Lof	Returns the length of a file in bytes.	"Get File Length Method" on page 68
Name	Renames a file or copies a file from one directory to another directory.	"Rename File Method" on page 77
Open	Opens a file.	"Open File Method" on page 75
Reset	Closes open files and writes to disk any data that currently resides in buffers.	"Close All Files Method" on page 62
SetAttr	Sets attribute information for a file.	"Set File Attributes Method" on page 78
Unlock	Controls access to some or all of an open file by other processes.	"Unlock File Method" on page 79

## File Input and Output Quick Reference

The following table lists methods that you can use to manipulate data in a file.

Statement	Purpose	Reference
Eof	Determines if the end of an open file has been reached.	<a href="#">"End of File Method" on page 80</a>
Get	Reads the content of a file, and then places this content in a variable.	<a href="#">"Get File Contents Method" on page 82</a>
Input	Returns a string of characters from a file.	<a href="#">"Get Characters From File Method" on page 82</a>
Input filenumber, variable	Reads data from a file, and then saves this data to different variables.	<a href="#">"Parse File Contents Method" on page 88</a>
Line Input	Reads a line from a sequential file, and then saves it in a string variable.	<a href="#">"Get Line From File Method" on page 87</a>
Loc	Returns the current offset of a file.	<a href="#">"Get File Offset Method" on page 85</a>
Print	Prints data to a file or to the screen.	<a href="#">"Print Data to File Method" on page 91</a>
Put	Writes a variable to a file.	<a href="#">"Write Variable to File Method" on page 96</a>
Seek filenumber	Returns the current position for a file.	<a href="#">"Get File Position Method" on page 86</a>
Seek filenumber, position	Sets the position of the next read or write operation in an open file.	<a href="#">"Set File Position Method" on page 92</a>
Spc	Prints a number of spaces.	<a href="#">"Print Spaces Method" on page 90</a>
Tab	Sets the current print position.	<a href="#">"Set Print Position Method" on page 94</a>
Width	Sets the output line width for an open file.	<a href="#">"Set File Width Method" on page 93</a>
Write	Writes data to a sequential file.	<a href="#">"Write Data to File Method" on page 94</a>

## Code Setup and Control Quick Reference

The following table lists methods that you can use to perform setup tasks and to control the flow of logic in Siebel VB code.

Statement	Purpose	Reference
Shell	Starts a Microsoft Windows application.	<a href="#">"Call Application Method" on page 97</a>
Call	Transfers control to a subroutine.	<a href="#">"Call Subroutine Method" on page 98</a>
Sub name	Creates a subroutine.	<a href="#">"Create Subroutine Method" on page 100</a>
Function	Creates a function.	<a href="#">"Create Function Method" on page 102</a>
Type userType	Declares a custom data type.	<a href="#">"Declare Custom Data Type Method" on page 104</a>
Declare Sub Declare Function	Declares a procedure or a function.	<a href="#">"Declare Procedure Method" on page 105</a>
Const constantName	Declares a symbolic constant.	<a href="#">"Declare Symbolic Constant Method" on page 107</a>
Environ	Returns a string from the operating system environment	<a href="#">"Get Environment Setting Method" on page 107</a>
Nothing	Sets an object variable to not reference an object.	<a href="#">"Remove Object Method" on page 108</a>
AppActivate	Sends keystrokes to a Microsoft Windows application.	<a href="#">"Send Keystrokes Method" on page 109</a>
Clipboard	Accesses the Microsoft Windows clipboard.	<a href="#">"Use Clipboard Methods" on page 113</a>

## Code Control Statements Quick Reference

The following table lists statements you can use to control the flow of logic in Siebel VB code.

Statement	Purpose	Reference
_	Treats the next line as a continuation of the current line.	Not applicable.
Command	Returns the command line specified when the MAIN sub runs.	Not applicable.
Do Loop	Controls repetitive actions.	<a href="#">"Do Loop Statement" on page 114</a>
Exit	Causes the current procedure or loop structure to return.	<a href="#">"Exit Statement" on page 115</a>

Statement	Purpose	Reference
For Next	Loops a fixed number of times.	"For Next Statement" on page 116
Go To	Sends control to a statement.	"Go To Statement" on page 118
Go To Label	Branches to one of multiple labels depending on value.	"Go To Label Statement" on page 120
If...Then... Else	Branches on a conditional value.	"If Then Else Statement" on page 119
Me	Gets the current object.	"Me Statement" on page 121
Rem or '	Treats the remainder of the line as a comment	"Rem Statement" on page 122
Select Case	Runs one of a series of statement blocks.	"Select Case Statement" on page 123
Stop	Stops code from running.	"Stop Statement" on page 124
While Wend	Controls repetitive actions.	"While Wend Statement" on page 125

## Variable Manipulation Quick Reference

The following table lists methods to manipulate variables.

Statement	Purpose	Reference
Deftype	Sets the default data type for one or more variables.	"Set Variable Data Type Statement" on page 136
Dim	Declares a variable.	"Declare Variable Statement" on page 128
Global	Declares a global variable.	"Declare Global Variable Statement" on page 129
Let	Assigns a value to a variable.	"Assign Expression to Variable Statement" on page 127
Null	Sets a variant variable to a value of Null.	"Set Variant Variable to Null Method" on page 137
Option Explicit	Forces you to explicitly declare every variable in a module.	"Force Explicit Declaration Statement" on page 133
Static	Declares a variable and allocates storage space for this variable.	"Declare Static Variable Statement" on page 132
VarType	Returns the type of data stored in a variant.	"Get Variant Type Method" on page 134
With	Runs a series of statements on a variable.	"Modify Variable Statement" on page 132

## Strings Quick Reference

The following table lists methods to manipulate strings.

Statement	Purpose	Reference
Chr	Converts a character code to a string.	<a href="#">"Get ANSI String Method" on page 145</a>
Format	Returns an expression in a format that you specify.	<a href="#">"Set String Format Method" on page 157</a>
InStr	Returns the position of one string in another string.	<a href="#">"Get Substring Position Method" on page 151</a>
LCase	Converts a string to lower case.	<a href="#">"Convert String to Lowercase Method" on page 142</a>
Left	Returns a string copied from the beginning of another string.	<a href="#">"Get Left String Method" on page 147</a>
Len	Returns the length of a string or size of a variable.	<a href="#">"Get String Length Method" on page 149</a>
Like	Compares the contents of two strings.	<a href="#">"Compare Strings Operator" on page 140</a>
Lset	Copies one string to another string or assigns a custom variable to another variable.	<a href="#">"Copy String Method" on page 143</a>
LTrim	Removes leading spaces from a string.	<a href="#">"Remove Spaces From String Method" on page 153</a>
Mid	Returns a portion of a string.	<a href="#">"Get Substring Method" on page 150</a>
Mid = string	Replaces part or all of one string with another string.	<a href="#">"Replace String Method" on page 154</a>
Option Compare	Specifies the default method for string comparisons to case-sensitive or not case-sensitive.	<a href="#">"Set String Comparison Method" on page 156</a>
Right	Returns the right portion of a string.	<a href="#">"Get Right String Method" on page 148</a>
Rset	Right-justifies one string in another string.	<a href="#">"Right-Justify String Method" on page 155</a>
RTrim	Removes trailing spaces from a string.	<a href="#">"Trim Trailing Spaces From String Method" on page 159</a>
Space	Returns a string of spaces.	<a href="#">"Get a String of Spaces Method" on page 144</a>
Str	Returns the string representation of a number.	<a href="#">"Convert Number to String Method" on page 141</a>
StrComp	Compares two strings.	<a href="#">"Compare Strings Method" on page 139</a>



Statement	Purpose	Reference
String	Returns a string that consists of a repeated character.	<a href="#">"Get Repeated Character String Method" on page 147</a>
Trim	Removes leading and trailing spaces from a string.	<a href="#">"Trim Spaces From String Method" on page 159</a>
UCase	Converts a string to upper case.	<a href="#">"Convert String to Uppercase Method" on page 143</a>
Val	Returns the numeric value of the first number that it finds in a string.	<a href="#">"Get First Number From String Method" on page 146</a>

## Arrays Quick Reference

The following table lists methods for manipulating arrays.

Statement	Purpose	Reference
Erase	Erases the contents of an array.	<a href="#">"Erase Array Method" on page 162</a>
LBound	Gets the lower boundary of an array.	<a href="#">"Get Array Lower Boundary Method" on page 163</a>
Option Base	Specifies the default lower boundary to use for an array.	<a href="#">"Set Array Lower Boundary Method" on page 164</a>
ReDim	Declares an array and reallocates memory.	<a href="#">"Declare Array Method" on page 160</a>
UBound	Gets the upper boundary of an array.	<a href="#">"Get Array Upper Boundary Method" on page 164</a>

## Math Operations Quick Reference

The following table lists methods to perform mathematical operations.

Statement	Purpose	Reference
Abs	Returns the absolute value of a number.	<a href="#">"Get Absolute Value Method" on page 168</a>
Asc	Returns an integer that corresponds to an ANSI character code.	<a href="#">"Get ANSI Integer Method" on page 168</a>
Atn	Returns the arctangent of a number.	<a href="#">"Get Arctangent Method" on page 169</a>
Cos	Returns the cosine of an angle.	<a href="#">"Get Cosine Method" on page 170</a>
Exp	Returns the value of e raised to a power.	<a href="#">"Exponential Method" on page 167</a>

Statement	Purpose	Reference
Fix	Removes the fractional part of a number.	"Get Rounded Integer Method" on page 172
Hex	Returns the hexadecimal representation of a number.	"Get Hexadecimal Method" on page 170
Int	Returns the integer part of a number.	"Get Integer Method" on page 171
Log	Returns the natural logarithm of a value.	"Get Logarithm Method" on page 173
Oct	Returns the octal representation of a number.	"Get Octal Method" on page 174
Randomize	Creates a starting value for the random number generator.	"Randomize Method" on page 178
Rnd	Returns a random number.	"Get Random Number Method" on page 175
Sgn	Returns a value that identifies the sign of a number.	"Get Number Sign Method" on page 175
Sin	Returns the sine of an angle.	"Get Sine Method" on page 176
Sqr	Returns the square root of a number.	"Get Square Root Method" on page 177
Tan	Returns the tangent of an angle.	"Get Tangent Method" on page 177

## Date and Time Quick Reference

The following table lists methods for date and time information.

Statement	Purpose	Reference
Date	Converts an expression to the data type variant of type date.	"Convert Number to Date Method" on page 180
Date = expression	Sets the computer date.	"Set Date Method" on page 193
DateSerial	Converts a number to a date.	"Convert Serial Number to Date Method" on page 181
DateValue	Converts a string to a date.	"Convert String to Date Method" on page 182
Day	Returns the day component of a date and time value.	"Extract Day From Date-Time Value Method" on page 184
Hour	Returns the hour of day component of a date and time value.	"Extract Hour From Date-Time Value Method" on page 185
Minute	Returns the minute component of a date and time value.	"Extract Minute From Date-Time Value Method" on page 185

Statement	Purpose	Reference
Month	Returns the month component of a date and time value.	<a href="#">"Extract Month From Date-Time Value Method" on page 186</a>
Now	Returns the current date and time.	<a href="#">"Get Current Date and Time Method" on page 189</a>
Second	Returns the second component of a date and time value.	<a href="#">"Extract Second From Date-Time Value Method" on page 187</a>
Time	Returns the current time.	<a href="#">"Get Current Time Method" on page 190</a>
Time = expression	Sets the current time.	<a href="#">"Set Time Method" on page 194</a>
Timer	Returns the number of seconds since midnight.	<a href="#">"Get Current Seconds Method" on page 191</a>
TimeSerial	Returns the time for a specific hour, minute, and second.	<a href="#">"Get Serial Time Method" on page 192</a>
TimeValue	Converts a string to time.	<a href="#">"Convert String to Time Method" on page 183</a>
Weekday	Returns the day of the week for the specified date and time value.	<a href="#">"Extract Weekday From Date-Time Value Method" on page 188</a>
Year	Returns the year component of a date and time value.	<a href="#">"Extract Year From Date-Time Value Method" on page 188</a>

## ODBC Quick Reference

The following table lists methods that you can use with ODBC.

Statement	Purpose	Reference
SQLClose	Disconnects from an ODBC data source connection.	<a href="#">"ODBC Close Connection Method" on page 196</a>
SQLError	Returns a detailed error message for an error that occurs during an ODBC method call.	<a href="#">"ODBC Get Errors Method" on page 197</a>
SQLExecQuery	Runs an SQL statement.	<a href="#">"ODBC Run Query Method" on page 205</a>
SQLGetSchema	Gets information about data sources, databases, users, owners, and so on.	<a href="#">"ODBC Get Schema Method" on page 201</a>
SQLOpen	Establishes a connection to an ODBC data source.	<a href="#">"ODBC Open Connection Method" on page 203</a>
SQLRequest	Makes a connection to a data source, runs an SQL statement, returns the results.	<a href="#">"ODBC Run Query and Get Results Method" on page 206</a>

Statement	Purpose	Reference
SQLRetrieve	Returns the results of a select statement that SQLExecQuery runs.	"ODBC Get Query Results Method" on page 199
SQLRetrieveToFile	Gets the results of an SQL query and stores them in a file.	"ODBC Save Results to File Method" on page 208

## Object Querying Quick Reference

The following table lists methods that you can use to query an object.

Statement	Purpose	Reference
If Typeof	Determines if an object is of a given class.	"Is Object Of Class Method" on page 211
IsDate	Determines if an expression evaluates to a date that Oracle's Siebel VB allows.	"Is Expression a Date Method" on page 210
IsEmpty	Determines if a variant has been set.	"Is Variable Set Method" on page 214
IsMissing	Determines if an optional argument for a procedure is missing.	"Is Optional Argument Missing Method" on page 211
IsNull	Determines if a variant contains a NULL value.	"Is Variable Null Method" on page 212
IsNumeric	Determines if a value is a valid number.	"Is Variable Numeric Method" on page 213

## Financials Quick Reference

The following table lists methods that you can use to calculate financial information.

Statement	Purpose	Reference
FV	Returns future value of a cash flow stream.	"Calculate Future Value Method" on page 217
IPmt	Returns interest payment for a given period.	"Calculate Interest Method" on page 217
IRR	Returns internal rate of return for a cash flow stream.	"Calculate Internal Rate of Return Method" on page 219
NPV	Returns net present value of a cash flow stream.	"Calculate Net Present Value Method" on page 220
Pmt	Returns a constant payment for each period for an annuity.	"Calculate Payment Method" on page 220

Statement	Purpose	Reference
PPmt	Returns principal payment for a given period.	"Calculate Principal Method" on page 221
PV	Returns present value of a future stream of cash flows.	"Calculate Present Value Method" on page 221
Rate	Returns interest rate for each period.	"Calculate Interest Rate Method" on page 218

## Conversions Quick Reference

The following table lists methods that you can use to convert a value.

Statement	Purpose	Reference
CCur	Converts a value to currency.	"Convert Expression to Currency Method" on page 223
CDbl	Converts a value to a double-precision floating point number.	"Convert Expression to Double-Precision Method" on page 224
CInt	Converts a value to an integer.	"Convert Expression to Integer Method" on page 224
CLng	Converts a value to a long number.	"Convert Expression to Long Method" on page 225
CSng	Converts a value to single-precision, floating point number.	"Convert Expression to Single-Precision Method" on page 226
CStr	Converts a value to a string.	"Convert Expression to String Method" on page 227
CVar	Converts a number or string to a variant.	"Convert Expression to Variant Method" on page 227
CVDate	Converts a value to a date.	"Convert Number to Date Method" on page 180

## COM Object Quick Reference

The following table lists methods for COM objects.

Statement	Purpose	Reference
CreateObject	Creates a new COM object.	"Create COM Object Method" on page 231
Dim As Object	A class that provides access to a COM object.	"COM Object Class" on page 230
GetObject	Gets a COM object from a file or gets the active COM object for a COM class.	"Get COM Object Method" on page 233
New	Allocates and initializes a new COM object.	"Initialize COM Object Method" on page 235
Set	Assigns a COM object to a variable.	"Assign COM Object Statement" on page 228

## Error Handling Quick Reference

The following table lists methods for error handling.

Statement	Purpose	Reference
Erl	Returns a number that identifies the code line where an error occurred.	"Get Error Code Line Method" on page 236
Err	Returns the error code of the last Visual Basic error handled.	"Get Error Code Method" on page 236
Err = errornumber	Sets a run-time error code.	"Set Error Code Method" on page 240
Error	Returns the error message that corresponds to an error code.	"Get Error Message Method" on page 237
Error errornumber	Simulates the occurrence of an error.	"Simulate Error Method" on page 241
On Error	Identifies the location of code that handles an error.	"On Error Method" on page 238
Resume	Stops the code that handles an error.	"Resume Statement" on page 239

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