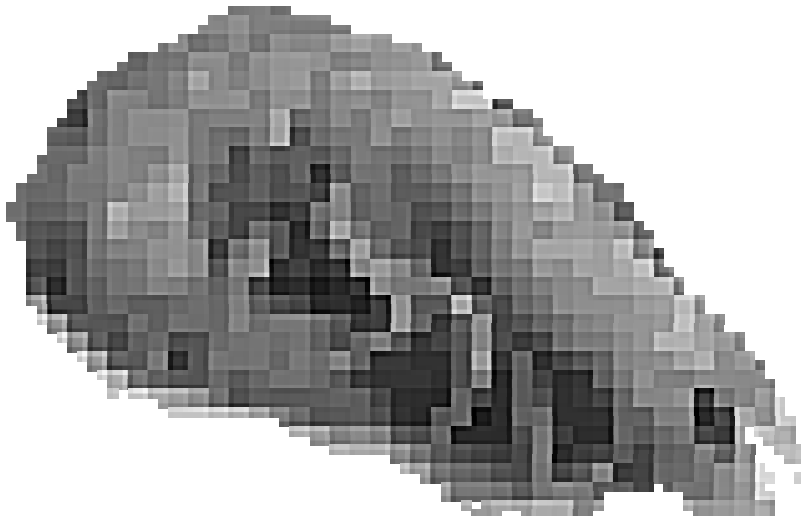
The Gambas Language Encyclopaedia



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Contents

Abs

Value = **Abs (** *Number* **)**

Compute the absolute value of a number.

Example :

```
PRINT Abs(-2)
⇨ 2
PRINT Abs(0)
⇨ 0
```

Acs / ACos

value = **Acs (** *Number* **)**
value = **ACos (** *Number* **)**

Compute the arc−cosine of a number.

Example :

```
PRINT Acs(0.5)
⇨ 1.047197551197
PRINT Acs(-1)
⇨ 3.14159265359
```

Acsh / ACosh

value = **Acsh (** *Number* **)**
value = **ACosh (** *Number* **)**

Compute the hyperbolic arc−cosine of a number.

Example :

```
PRINT Acsh(2)
⇨ 1.316957896925
```

AND

Result **=** *Expression* **AND** *Expression*

Compute the logical *and* of two boolean expressions, or the numerical *and* of two integer numbers.

Example :

```
PRINT TRUE AND FALSE
⇨ False
PRINT TRUE AND TRUE
⇨ True
PRINT 7 AND 11
```

⇨ 3

Arithmetic operators

Number **+** *Number*	Add two numbers.
Number **−** *Number*	Substract two numbers.
Number ***** *Number*	Multiply two numbers.
Number **/** *Number*	Divide two numbers.
Number **^** *Power*	Raises *Number* to the power *Power*.
Number **** *Number*	Quotient of the two numbers.
Number **MOD** *Number*	Remainder of the quotient of the two numbers.
− *Number*	Computes the opposite of a number.

Array *(class)*

This a class is a container whose elements are variants indexed by an integer number.

This class is enumerable.

This class is acting like an array.

Properties

Count Length

Methods

Add Clear FromString
Remove Sort

Array.Add

SUB Add **(** *Value* **AS Variant** [**,** *Index* **AS Integer**] **)**

Add an element into the array. If *Index* is not specified, the element is added at the end of the array. If *Index* is specified, the element is inserted into the array at the position given by *Index*.

Array.Clear

SUB Clear **( )**

Clear the array.

Array.Count / Array.Length

PROPERTY READ Count **AS Integer**
PROPERTY READ Length **AS Integer**

Return the number of elements in the array.

Array.FromString

FUNCTION FromString **(** *String* **AS String** [**,** *Separators* **AS String = ","** **,** *Escape* **AS String**] **) AS Integer**

Split a string into substring delimited by *Separators*. *Escape* characters can be specified : any separator characters enclosed between two escape characters are ignored in the splitting process.

By default, the comma character is the separator, and there are no escape characters.

The array is filled with every detected substring. The number of substrings is returned.

Example :

```
DIM Elt AS NEW Array
DIM Sub AS String

PRINT Elt.FromString("Gambas Almost Means BASIC ! 'agree ?'", " ", "'")

FOR EACH Sub IN Elt
  PRINT Sub
NEXT

⇨
6
Gambas
Almost
Means
BASIC
!
agree ?
```

Array.Remove

SUB Remove **(** *Index* **AS Integer)**

Remove the element at position *Index* from the array. Every following elements are moved.

Array.Sort

SUB Sort **(** [*Compare* **AS Integer**] **)**

Sort the array, providing its elements are all numbers or strings.

If the array contains strings, a *Compare* argument can be specified. It gives the the string sort style : binary, case insensitive, or language–based. By default, the sort is binary.

See *Predefined constants* for the list of sort type constants.

Example :

```
DIM Elt AS NEW Array
DIM Sub AS String

Elt.FromString("Gambas Almost Means BASIC ! 'agree ?'", " ", "'")
Elt.Sort(gb.Case)

FOR EACH Sub IN Elt
  PRINT Sub
NEXT

⇨
!
agree ?
Almost
BASIC
Gambas
Means
```

Asc

Code **= Asc (** *String* [**,** *Position*])

Returns the ASCII code of the character at position *Position* in the string. If *Position* is not specified, the ASCII code of the first character is returned.

Example :

```
PRINT Asc("Gambas")
⇨ 71
PRINT Asc("Gambas", 3)
⇨ 109
```

Asn / ASin

value = **Asn (** *Number* **)**
value = **ASin (** *Number* **)**

Compute the arc–sine of a number.

Example :

```
PRINT Asn(0.5)
```

```
⇨ 0.523598775598
PRINT Asn(−1)
⇨ −1.570796326795
```

Asnh / ASinh

value = **Asnh (** *Number* **)**
value = **ASinh (** *Number* **)**

Compute the hyperbolic arc−sine of a number.

Example :

```
PRINT Asnh(2)
⇨ 1.443635475179
```

Assignment

Variable **=** *Expression*

Assign the value of an expression to one of the following elements :

- A local variable.
- A function parameter.
- A global (class) variable.
- An array slot.
- An object public variable.
- An object property.

Atn / ATan

value = **Atn (** *Number* **)**
value = **ATan (** *Number* **)**

Compute the arc−tangent of a number.

Example :

```
PRINT Atn(0.5)
⇨ 0.463647609001
```

Atnh / ATanh

value = **Atnh (** *Number* **)**
value = **ATanh (** *Number* **)**

Compute the hyperbolic arc–tangent of a number.

Example :

```
PRINT Atnh(0.5)
⇨ 0.549306144334
```

BChg

Value **= BChg (** *Number* **,** *Bit* **)**

Return *Number* with its Bit^{th} bit inverted.

Example :

```
PRINT BChg(15, 1)
⇨ 13
PRINT BChg(13, 1)
⇨ 15
```

BClr

Value **= BClr (** *Number* **,** *Bit* **)**

Return *Number* with its Bit^{th} bit cleared.

Example :

```
PRINT BClr(15, 1)
⇨ 13
PRINT BClr(13, 1)
⇨ 13
```

Bin$

String = **Bin$** (*Number* [, *Digits*])

Gets the binary representation of a number. If *Digits* is specified, the representation is padded with unnecessary zeros so that *Digits* digits are returned.

Example :

```
PRINT Bin$(77)
⇨ 1001101
PRINT Bin$(77, 16)
⇨ 0000000001001101
```

BREAK

BREAK

Leave a loop immediately.

BSet

Value **= BSet (** *Number* **,** *Bit* **)**

Return if the *Bit*th bit of *Number* is set.

Example :

```
PRINT BSet(13, 1)
⇨ 15
PRINT BSet(15, 1)
⇨ 15
```

BTst

Boolean **= BTst (** *Number* **,** *Bit* **)**

Return *Number* with its *Bit*th bit cleared.

Example :

```
PRINT BTst(15, 1)
⇨ True
PRINT BTst(13, 1)
⇨ False
```

CASE

See *SELECT*.

CBool

Boolean = **CBool** (*Expression*)

Converts an expression into a boolean.

An expression is false if it is :

- A false boolean.
- A zero number.

- A zero length string.
- A null object.

An expression is true in all other cases.

Example :

```
PRINT CBool(0); " "; CBool(1)
⇨ False True
PRINT CBool("Gambas"); " "; CBool("")
⇨ True False
PRINT CBool(NULL)
⇨ False
```

CByte

Byte = **CByte** (*Expression*)

Convert an expression into a byte. *Expression* is first converted into an integer. Then, if this integer overflows the byte range, it is truncated.

Example :

```
PRINT CByte("17")
⇨ 17
PRINT CByte(100000)
⇨ 160
PRINT CByte(TRUE)
⇨ 255
```

CDate

Date = **CDate** (*Expression*)

Converts an expression into a date/time value. Be careful, the current localization is NOT used by this function.

Example :

```
PRINT CDate("09/06/1972 01:45:12")
⇨ 09/06/1972 01:45:12
PRINT CDate(2484515)
⇨ 05/16/2002
```

CFloat

Float = **CFloat** (*Expression*)

Converts an expression into a floating point number. Be careful, the current localization is NOT used by this function.

Example :

```
PRINT CFloat("+3.1416")
```

```
⇨ 3.1416
PRINT CFloat("1.0E+3")
⇨ 1000
```

Chr$

Character **= Chr$ (** *Code* **)**

Returns the character whose ASCII code is *Code*.

Example :

```
PRINT Chr$(65)
⇨ A
```

CInt / CInteger

Integer = **CInt** (*Expression*)
Integer = **CInteger** (*Expression*)

Converts an expression into an integer.

Example :

```
PRINT CInt("17")
⇨ 17
PRINT CInt(100000)
⇨ 100000
PRINT CInt(TRUE)
⇨ -1
PRINT CInt(3.6)
⇨ 3
PRINT CInt(Now)
⇨ 2484515
```

CLOSE

CLOSE *#File*

Closes an opened file.

Collection *(class)*

This a class is a container whose elements are variants indexed by a string.

This class is enumerable, but the order of the enumeration is not predictable.

This class is acting like an array.

Properties

Count Length

Methods

Add Clear Exist
Remove

Collection [ ]

Collection **[** *Key* **] =** *Value*

Add an element into the collection. This element will be indexed by the string *Key.*

It is an equivalent of : Collection.Add(*Value , Key*)

Collection **[** *Key* **] = NULL**

Remove the element indexed by *Key* from the collection.

It is an equivalent of : Collection.Remove(*Key*)

Collection.Add

SUB Add **(** *Value* **AS Variant ,** *Key* **As String)**

Add an element into the collection. This element will be indexed by the string *Key.*

Note : Value cannot be null.

It is an equivalent of : Collection[*Key*] = *Value*

Collection.Clear

SUB Clear **( )**

Clear the collection.

Collection.Count / Collection.Length

PROPERTY READ Count **AS Integer**
PROPERTY READ Length **AS Integer**

Return the number of elements in the collection.

Collection.Exist

FUNCTION Exist **(** *Key* **As String) AS Boolean**

Return if something is associated with the string *Key*.

Collection.Remove

SUB Remove **(** *Key* **As String)**

Remove the element indexed by *Key* from the collection.

It is an equivalent of : Collection[*Key*] = NULL

Comparison operators

Number **=** *Number*	Are the two numbers equal ?
Number **<>** *Number*	Are the two numbers different ?
Number **<** *Number*	Is the first number lower than the second ?
Number **>** *Number*	Is the first number greater than the second ?
Number **<=** *Number*	Is the first number lower or equal than the second ?
Number **>=** *Number*	Is the first number greater or equal than the second ?

The Compiler

The compiler is a program named *gbc*. Its usage is the following :

gbc [*options*] *project file*

Options:

`-g --debug`	add debugging information.
`-v --verbose`	verbose output.
`-a --all`	compile all files.
`-V --version`	print compiler version.
`-h --help`	print help.

The compiler takes each source file in the specified project, and tries to compile them if they were modified since the last compilation. If the option " `-a` " is specified, every source file is compiled, regardless its last modification time.

The compilation of a source file produces a compiled file whose name is the compiled class name in uppercase. This file is placed in the project subdirectory named " `.gambas` ".

If there is an error during the compilation, the compiler will print a message like this :

```
# gbc ~/MyProject/MyProject.project
MyClass.class:23: Unknown identifier 'sPatg'
```

The " `-g` " option is required when you want to debug a program. It adds to the compiled files line numbers, private methods, local variables and parameters identifiers, so that you can use them while debugging.

Constants

The true value.	`True`
The false value.	`False`
Integer numbers.	`0, 123, -32769`
Hexadecimal short signed integers.	`&H1F5, &HFFFF`
Hexadecimal signed integers.	`&H10BF332E`
Hexadecimal unsigned integers.	`&H8000&, &HFFFF&`
Floating point numbers.	`1.0, -5.345E+45`
String constants.	`"Hello World !"`
Null constant.	`Null`

Constants declaration

(**PUBLIC** | **PRIVATE**) **CONST** *Identifier* **AS** *Datatype* = *Constant value*

This declares a class global constant.

- This constant is accessible everywhere in the class it is declared.
- If the PUBLIC keyword is specified, it is also accessible to the other classes having a reference to an object of this class.
- Constant must be booleans, integers, floating point numbers or strings.

Example :

```
PUBLIC CONST MAX_FILE AS Integer = 30
PRIVATE CONST MAGIC_HEADER AS String = "# Gambas form file"
```

CONTINUE

CONTINUE

Jump to the next occurrence of a loop.

Example :

```
FOR I = 1 TO 10

  IF I = 1 THEN
    PRINT " One";
    CONTINUE
  ENDIF

  IF I = 2 THEN
    PRINT " Two";
    CONTINUE
  ENDIF

  PRINT I;

NEXT

PRINT

⇨  One Two 3 4 5 6 7 8 9 10
```

Cos

value = **Cos** (*angle*)

Compute the cosine of an angle. The angle is specified in radians.

Example :

```
PRINT Cos(Pi)
⇨ -1
```

Cosh

Value = **Cosh** (*Number*)

Compute the hyperbolic cosine of a number.

Example :

```
PRINT Cosh(1)
⇨ 1.543080634815
```

CShort

Short = **CShort** (*Expression*)

Converts an expression into a short integer. *Expression* is first converted into an integer. Then, if this integer overflows the short range, it is truncated.

Example :

```
PRINT CShort("17")
⇨ 17
PRINT CShort(100000)
```

```
⇨ -31072
PRINT CShort(TRUE)
⇨ -1
```

CStr / CString

String = **CStr** (*Expression*)
String = **CString** (*Expression*)

Converts an expression into a string. Be careful, the current localization is NOT used by this function.

Example :

```
PRINT CStr(-1972)
⇨ -1972
PRINT CStr(Now)
⇨ 05/16/2002 15:08:31
PRINT CStr(Pi)
⇨ 3.14159265359
```

Datatypes

	Description	*Memory size*	*Default value*
Boolean	`True` or `False`	1 byte	`False`
Byte	`0` ... `255`	1 byte	`0`
Short	`-32768` ... `+32767`	2 bytes	`0`
Integer	`-2147483648` ... `+2147483647`	4 bytes	`0`
Float	Like the *double* datatype in *C*	8 bytes	`0.0`
Date	Date and time, each stored in an *integer*.	8 bytes	`Null`
String	A reference to a variable length string.	4 bytes	`Null`
Variant	Any datatype.	12 bytes	`Null`
Object	A anonymous reference to an object.	4 bytes	`Null`

Date

Result **= Date (** *Date/Time* **)**

Returns a date without its time component.

Example :

```
PRINT Now; " -> "; Date(Now)
⇨ 05/16/2002 15:10:59 -> 05/16/2002
```

Date = **Date (** *Year* **,** *Month* **,** *Day* [**,** *Hours* **,** *Minutes* **,** *Seconds*] **)**

Makes a date from its components.

Example :

```
PRINT Date(1972, 09, 06, 1, 5)
⇨ 09/06/1972 01:05:00
```

Day

Result **= Day (** *Date/Time* **)**

Returns the day component of a date/time value.

Example :

```
PRINT Day(Now)
⇨ 16
```

DEFAULT

See *SELECT*.

Deg

Value = **Deg (** *Angle* **)**

Convert radians to degrees.

Example :

```
PRINT Deg(Pi / 2)
⇨ 90
```

DIM

See *Local variable declaration*.

Dir$

File name **= Dir$ (** *Directory* [**,** *File pattern*] **)**

Return the name of the first file in *Directory* that matches the pattern. If no pattern is specified, any file name is returned. The pattern can contain the same generic characters than the **LIKE** operator.

File name **= Dir$ ( )**

Return the next entry of the directory given with the first syntax of **Dir$().**

Warning ! This function is not reentrant. You cannot use it recursively.

Example :

```
' Print a directory

SUB PrintDirectory(Directory AS String)

  DIM File AS String

  File = Dir$(Directory, "*.*")

  WHILE File

    PRINT File
    File = Dir$()

  WEND

END
```

DO

DO [**WHILE** *Expression*]

Begins an infinite loop structure delimited by DO ... LOOP instructions. If WHILE is specified, the loop is stopped when *Expression* is false.

ELSE

See *IF*.

END

Indicates the end of a procedure or a function. See *Method declaration*.

END SELECT

See *SELECT*.

END WITH

See *WITH*.

Eof

Boolean **= Eof (** *File* **)**

Returns if we are at the end of the stream.

See *LINE INPUT* for an example.

EVENT

See *Events declaration.*

Events declaration

EVENT *Identifier* **(** [*Parameter #1* [, *Parameter #2* ...] **)** [**AS Boolean**]

This declares a class event. This event is raised by a function call. You can specify if the event handler returns a boolean value.

Example :

```
EVENT BeforeSend(Data AS String) AS Boolean
```

Exist

Boolean **= Exist (** *Path* **)**

Returns if a file or a directory exists.

Example :

```
PRINT Exist("/home/benoit/gambas")
⇨ True
PRINT Exist("/home/benoit/windows")
⇨ False
```

Exp

value = **Exp (** *Number* **)**

Compute the exponantial of a number.

Example :

```
PRINT Exp(1)
⇨ 2.718281828459
```

FALSE

The False constant. This constant is used to represent a false boolean value.

File *(class)*

This class is used to manage file names, load and save file from a string, read file properties...

File objects cannot be instanciated with the NEW operator. They must be created by the OPEN instruction.

Constants

Separator(S)

Properties

Err(S)	Hidden(S)	In(S)
Mode(S)	Out(S)	Size(S)
Time(S)	Type(S)	

Methods

BaseName(S)	Dir(S)	Ext(S)
Load(S)	Name(S)	Save(S)

File.BaseName

STATIC FUNCTION BaseName **(** Path **AS String) AS String**

Extract the name of a file without its extension.

Example :

```
PRINT File.BaseName("/home/benoit/print.pdf")
⇨ print
```

File.Dir

STATIC FUNCTION Dir **(** Path **AS String) AS String**

Extract the directory part of a file path name.

Example :

```
PRINT File.Dir("/home/benoit/print.pdf")
⇨ /home/benoit
```

File.Err

STATIC PROPERTY READ Err **AS** File

Return the file object associated to the standard error stream.

Example :

```
' Print a debug message to standard error
PRINT #File.Err, "Debug: Cpt ="; Cpt
```

File.Ext

STATIC FUNCTION Ext **(** Path **AS String) AS String**

Extract extension from a file path name.

Example :

```
PRINT File.Ext("/home/benoit/print.pdf")
⇨ pdf
```

File.Hidden

STATIC PROPERTY READ Hidden **AS Boolean**

Return if the last file analyzed by the Stat() function is hidden or not. Under UNIX, a file hidden if its name begins with a dot.

Example :

```
Stat("/home/benoit/.bashrc")
PRINT File.Hidden
⇨ True
```

File.In

STATIC PROPERTY READ In **AS** File

Return the file object associated to the standard input stream. It is used by INPUT, READ and LINE INPUT when their stream parameter is not specified.

Example :

```
' Strictly equivalent
LINE INPUT ReadLine
LINE INPUT #File.In, ReadLine
```

File.Load

STATIC FUNCTION Load **(** Path **AS String) AS String**

Load a file, and return its contents as a string.

Example :

```
DIM Content AS String
Content = File.Load("/path/to/file")
PRINT "File length is"; Len(Content)
PRINT "File contains the string 'Gambas' : "; InStr(Content, "Gambas") > 0
...
```

File.Name

STATIC FUNCTION Name **(** Path **AS String) AS String**

Extract the name of a file.

Example :

```
PRINT File.Name("/home/benoit/print.pdf")
⇨ print.pdf
```

File.Out

STATIC PROPERTY READ Out **AS** File

Return the file object associated to the standard output stream. It is used by PRINT and WRITE when their stream parameter is not specified.

Example :

```
' Strictly equivalent
```

```
PRINT AnyString;

PRINT #File.Out, AnyString;
```

File.Save

STATIC SUB Save **(** *Path* **AS String ,** *Data* **AS String)**

Save data contained in *Data* in a file whose path is *Path.*

Example :

```
' Concatenate two files

DIM Content AS String

Content = File.Load("/path/to/first/file")
Content = Content & File.Load("/path/to/second/file")

File.Save("/path/to/result", Content)
```

File.Separator

CONST Separator **AS String = "/"**

Return the character used to separate directories in a file name.

File.Size

STATIC PROPERTY READ Size **AS Integer**

Return the size of the last file analyzed by the Stat() function.

Example :

```
Stat("/home/benoit/.bashrc")
PRINT File.Size
⇨  124
```

File.Time

STATIC PROPERTY READ Time **AS Date**

Return the last modification date of the last file analyzed by the Stat() function.

Example :

```
Stat("/home/benoit/.bashrc")
PRINT File.Time
⇨ 04/25/2002 01:45:18
```

File.Type

STATIC PROPERTY READ Type **AS Integer**

Return the type of the last file analyzed by the Stat() function. See *Predefined constants* for a list of constants associated with file types.

Example :

```
Stat("/home/benoit/.bashrc")
PRINT File.Type
⇨ 0
```

Fix

Value = **Fix (** *Number* **)**

Return the integer part of a number.

Example :

```
PRINT Fix(Pi)
⇨ 3
PRINT Fix(-Pi)
⇨ -3
```

FLUSH

FLUSH [*#File*]

Flush a buffered stream. If no stream is specified, every opened streams are flushed.

FOR

FOR *Variable* = *Expression* **TO** *Expression* [**STEP** *Expression*]
  ...
NEXT

Repeat a loop while incrementing a variable. Note that the variable must be :

- Numeric, i.e. a byte, a short, an integer or a floating point number.
- A local variable.

Example :

```
DIM I AS Integer

FOR I = 1 TO 20 STEP 3
  PRINT I;
```

```
NEXT
PRINT

⇨ 1 4 7 10 13 16 19
```

FOR EACH

FOR EACH *Variable* **IN** *Expression*
  ...
NEXT

Repeat a loop while enumerating an object. *Expression* must be a reference to an enumerable object : for example, a collection, or an array. The order of the enumeration in not necessarily predictable.

Example :

```
DIM Dict AS NEW Collection

Dict["Blue"] = 3
Dict["Red"] = 1
Dict["Green"] = 2

FOR EACH Element IN Dict
  PRINT Element;
NEXT

⇨ 3 2 1
```

Format$

String = **Format$** (*Expression* [, *Format*])

Converts an expression to a string by using a format that depends on the type of the expression. Format can be a predefined format (an integer constant) or a user−defined format (a string that depicts the format).

This function uses localization information to format dates, times and numbers.

See *Predefined constants* for a list of predefined formats. If *Format* is not specified, *gb.Standard* is used.

A user−defined number format is described by the following characters :

- "+" prints the sign of the number.
- "−" prints the sign of the number only if it is negative.
- "#" prints a digit only if necessary.
- "0" always prints a digit, padding with a zero if necessary.
- "." prints the decimal separator.
- "%" multiply the number by 100 and prints a per−cent sign.
- "E" introduces the exponential part of a float number. The sign of the exponent is always printed.

A user−defined date format is described by the following characters :

- "yy" prints the year on two digits.
- "yyyy" prints the year on four digits.
- "m" prints the month.
- "mm" prints the month on two digits.
- "mmm" prints the month in an abbreviatted string form.
- "mmmm" prints the month in its full string form.
- "d" prints the day.

- "dd" prints the day on two digits.
- "ddd" prints the week day in an abbreviated form.
- "dddd" prints the week day in its full form.
- "/" prints the date separator.
- "h" prints the hour.
- "hh" prints the hour on two digits.
- "n" prints the minutes.
- "nn" prints the minutes on two digits.
- "s" prints the seconds.
- "ss" prints the seconds on two digits.
- ":" prints the time separator.

User−defined numeric format examples :

```
PRINT Format$(Pi, "−#.###")
⇨ 3.142
PRINT Format$(Pi, "+0#.###0")
⇨ +03.1416
PRINT Format$(Pi / 10, "###.# %")
⇨ 31.4 %
PRINT Format$(−11 ^ 11, "#.##E##")
⇨ −2.85E+11
```

User−defined date and time format examples :

```
PRINT Format$(Now, "mm/dd/yyyy hh:mm:ss")
⇨ 04/15/2002 09:05:36
PRINT Format$(Now, "m/d/yy h:m:s")
⇨ 4/15/02 9:5:36
PRINT Format$(Now, "ddd dd mmm yyyy")
⇨ Mon Apr 15 2002
PRINT Format$(Now, "dddd dd mmmm yyyy")
⇨ Monday April 15 2002
```

Frac

Value = **Frac (** *Number* **)**

Compute the fractional part of a number.

Example :

```
PRINT Frac(Pi)
⇨ 0.14159265359
```

FUNCTION

See *Class method declaration*.

GOTO

GOTO *Label*

Jump to a label declared elsewhere in the function.

Hex$

String = **Hex$** (*Number* [, *Digits*])

Gets the hexadecimal representation of a number. If *Digits* is specified, the representation is padded with unnecessary zeros so that *Digits* digits are returned.

Example :

```
PRINT Hex$(1972)
⇨ 7B4
PRINT Bin$(72, 8)
⇨ 000007B4
```

Hour

Result **= Hour (** *Date/Time* **)**

Returns the hours of a date/time value.

Example :

```
PRINT Now; " -> "; Hour(Now)
⇨ 05/16/2002 22:31:30 -> 22
```

IF

IF *Expression* **THEN**
  ...
[**ELSE IF** *Expression* **THEN**
  ...]
[**ELSE**
  ...]
ENDIF

Conditional control structure.

INPUT

INPUT *Variable* [**,** *Variable* ...]

Reads the standard input, and converts elements separated by space characters or newlines with the **Val()** function before putting them into the variables.

INPUT *#File* , *Variable* [**,** *Variable* ...]

Same as above, except that the data are read from the stream *File*.

InStr

Position **= InStr (** *String* **,** *Substring* [**,** *Start*])

Returns the position of the first occurrence of *Substring* in *String*. If *Start* is specified, the search begins at the position *Start*.

If the substring is not found, InStr() returns zero.

Example :

```
PRINT Instr("Gambas is basic", "bas")
⇨ 4
PRINT Instr("Gambas is basic", "bas", 5)
⇨ 11
PRINT Instr("Gambas is basic", "not")
⇨ 0
```

Int

Value = **Int (** *Number* **)**

Return the mathematical integer part of a number, i.e. the greater integer smaller than this number.

Example :

```
PRINT Int(Pi)
⇨ 3
PRINT Int(-Pi)
⇨ -4
```

The Interpreter

The interpreter is a program named *gbx*. Its usage is the following :

gbx [*options*] (*project file* | *archive file*) **--** *program options*

Options:

`-x`	execute an archive.
`-g --debug`	enter debugger.

`-V --version`	print interpreter version.
`-h --help`	print help.

If a project file is given, *gbx* executes the project by calling the static public method *Main()* in the startup class defined in the project file.

If a archive file is given, and if the option *–x* is passed, then *gbx* executes the project stored in the archive.

If the option *–g* is given, then the interpreter starts in debugging mode, so that a development environment is able to drive it.

If *gbx* encounters an error during the execution of the project, it prints an error message like that before aborting :

```
# gbx MyProject.project
...
[MyClass.MyFunction.13] #11: Unknown symbol 'Align' in class 'Button'
Abort
#
```

IsBoolean / Boolean?

Boolean = **IsBoolean** (*Expression*)
Boolean = **Boolean?** (*Expression*)

Return if an expression is a boolean.

Example :

```
PRINT IsBoolean(FALSE)
⇨ TRUE
PRINT IsBoolean(-1)
⇨ FALSE
PRINT IsBoolean(NULL)
⇨ FALSE
```

IsByte / Byte?

Boolean = **IsByte** (*Expression*)
Boolean = **Byte?** (*Expression*)

Return if an expression is a byte integer.

Example :

```
PRINT IsByte(1)
⇨ FALSE
PRINT IsByte(CByte(1))
⇨ TRUE
```

IsDate / Date?

Boolean = **IsDate** (*Expression*)
Boolean = **Date?** (*Expression*)

Return if an expression is a date and time value.

Example :

```
PRINT IsDate(1)
⇨ FALSE
PRINT IsByte(CByte(1))
⇨ TRUE
```

IsFloat / Float?

Boolean = **IsFloat** (*Expression*)
Boolean = **Float?** (*Expression*)

Return if an expression is a floating point number.

Example :

```
PRINT IsFloat(1)
⇨ FALSE
PRINT IsFloat(Pi)
⇨ TRUE
```

IsInteger / Integer?

Boolean = **IsInteger** (*Expression*)
Boolean = **Integer?** (*Expression*)

Return if an expression is an integer.

Example :

```
PRINT IsInteger(1)
⇨ TRUE
PRINT IsInteger(Pi)
⇨ FALSE
```

IsNull / Null?

Boolean = **IsNull** (*Expression*)
Boolean = **Null?** (*Expression*)

Return if an expression is null, i.e. if it is :

- The NULL constant.
- A null object reference.

- A zero length string.
- A null date.
- A uninitialized variant.

Example :

```
PRINT IsNull(NULL)
⇨ TRUE
PRINT IsNull("Gambas")
⇨ FALSE
PRINT IsNull("")
⇨ TRUE
```

IsNumber / Number?

Boolean = **IsNumber** (*Expression*)
Boolean = **Number?** (*Expression*)

Return if an expression is a number, i.e. if it is :

- A boolean.
- Any integer number.
- A floating point number.

Example :

```
PRINT IsNumber(1)
⇨ TRUE
PRINT IsNumber(TRUE)
⇨ TRUE
PRINT IsNumber(Pi)
⇨ TRUE
PRINT IsNumber(Now)
⇨ FALSE
PRINT IsNumber(NULL)
⇨ FALSE
```

IsObject / Object?

Boolean = **IsObject** (*Expression*)
Boolean = **Object?** (*Expression*)

Return if an expression is an object or a null reference.

Example :

```
DIM hRef AS Collection

hRef = NEW Collection

PRINT IsObject(hRef)
⇨ TRUE
PRINT IsObject(NULL)
⇨ TRUE
PRINT IsObject(Pi)
⇨ FALSE
```

IsShort / Short?

Boolean = **IsShort** (*Expression*)
Boolean = **Short?** (*Expression*)

Return if an expression is a short integer.

Example :

```
PRINT IsShort(1)
⇨ FALSE
PRINT IsShort(CShort(1))
⇨ TRUE
```

IsString / String?

Boolean = **IsString** (*Expression*)
Boolean = **String?** (*Expression*)

Return if an expression is a string.

Example :

```
PRINT IsString("Gambas")
⇨ TRUE
PRINT IsString("")
⇨ TRUE
PRINT IsString(NULL)
⇨ TRUE
PRINT IsString(Pi)
⇨ FALSE
```

Kill

Kill (*Path* **)**

Remove a file.

Labels

Identifier **:**

A label indicates a target for the GOTO instruction.

A label is local to a function or procedure.

LAST

Return a reference to the last object that raised an event.

Example :

```
DIM hButton[3] AS Button

hButton[0] = NEW Button AS "MyButtons"
hButton[0].Text = "Red"

hButton[1] = NEW Button AS "MyButtons"
hButton[1].Text = "Green"

hButton[2] = NEW Button AS "MyButtons"
hButton[2].Text = "Blue"

...

PUBLIC SUB MyButtons_Click()

  PRINT LAST.Text

END
```

Left$

Result **= Left$ (** *String* [**,** *Length*])

Return the *Length* first characters of a string. If *Length* is not specified, the first character of the string is returned. If *Length* is negative, all the string except the (*–Length)* last characters is returned.

Example :

```
PRINT Left$("Gambas", 4)
⇨ Gamb
PRINT Left$("Gambas")
⇨ G
PRINT Left$("Gambas", -1)
⇨ Gamba
```

Len

Length **= Len (** *String* **)**

Returns the length of a string.

Example :

```
PRINT Len("Gambas")
⇨ 6
PRINT Len("")
⇨ 0
```

LIKE

Boolean = *String* **LIKE** *Pattern*

Return `True` if *String* matches *Pattern*. The pattern can contain the following generic characters :

- "*" matches any number of any character.
- "?" matches any single character.
- "[x–y]" matches any character in the interval.
- "[^x–y]" matches any character not in the interval.
- "\" prevents a character to be interpreted as generic.

LINE INPUT

LINE INPUT *Variable*

Reads an entire line of text on the standard input.

LINE INPUT *#File* **,** *Variable*

Same as above, except that the data are read from the stream *File*.

Example :

```
' Print a file to standard output

OPEN FileName FOR READ AS #hFile

WHILE NOT Eof(hFile)
  LINE INPUT #hFile, OneLine
  PRINT OneLine
WEND

CLOSE #hFile
```

Local variable declaration

[**DIM**] *Identifier* **AS** *Datatype*

Declare a local variable in a procedure or function. This variable is only accessible to the procedure or function where it is declared.

Example :

```
DIM Val AS INTEGER
DIM Name AS STRING
DIM Matrix[3, 3] AS FLOAT
DIM AnObject AS OBJECT
...
```

Lof

Length **= Lof (** *File* **)**

Returns the length of a opened stream.

Example :

```
OPEN FileName FOR READ AS #hFile
...
PRINT "File length is"; Lof(hFile)
```

Log

value = **Log (** *Number* **)**

Compute the neperian logarithm of a number.

Example :

```
PRINT Log(2.71828)
⇨ 0.999999327347
PRINT Log(1)
⇨ 0
```

Log10

value = **Log10 (** *Number* **)**

Compute the decimal logarithm of a number. Log10(x) = Log(x) / Log(10).

Example :

```
PRINT Log10(10)
⇨ 1
```

LOOP

LOOP [**UNTIL** *Expression*]

Ends a loop structure delimited by DO ... LOOP instructions. If UNTIL is specified, the loop is stopped when *Expression* is true.

Lower$ / LCase $

Result **= Lower$ (** *String* **)**
Result **= LCase$ (** *String* **)**

Return a string converted to lower case.

Example :

```
PRINT Lower$("Gambas ALMOST Means BASIC !")
⇨ gambas almost means basic !
```

Max

value = **Max (** *Expression* [, *Expression* ...] **)**

Return the greater expression of the list. Expressions must be numbers or date/time values.

Example :

```
PRINT Max(6, 4, 7, 1, 3)
⇨ 7
PRINT Max(Now, CDate("01/01/1900"), CDate("01/01/2100"))
⇨ 01/01/2100
```

ME

Return a reference to the current object.

ME is mandatory when you want to call an inherited method, or access an inherited property or variable.

Example :

```
' Gambas form

...

PUBLIC SUB SetTitle(Title AS String)

  ME.Text = Title

END

PUBLIC SUB MoveRight(Step AS Integer)

  ME.Move(ME.X + Step, ME.Y)

END
```

Methods declaration

[**STATIC**] (**PUBLIC** | **PRIVATE**) (**PROCEDURE** | **SUB** | **FUNCTION**) *Identifier*
  ([[**OPTIONAL**] *Parameter #1* [, [**OPTIONAL**] *Parameter #2 ...*] **)**
  [**AS** *Datatype*]
 ...
END

This declares a class method. The END keyword indicates the end of the method.

- This method is accessible everywhere in the class it is declared.
- If the PUBLIC keyword is specified, it is also accessible to the other classes having a reference to an object of this class.
- If the STATIC keyword is specified, the method can only access to the static variables of the class.
- If the keyword FUNCTION is specified, the method is a function and the return datatype must be specified.
- If the keyword OPTIONAL is specified, the corresponding parameter is optional. Then you can specify a default value after the parameter declaration.

Example :

```
STATIC PUBLIC PROCEDURE Main()
...
PUBLIC FUNCTION Calc(A AS Float, B AS Float) AS Float
...
PRIVATE SUB DoIt(Command AS String, OPTIONAL SaveIt AS BOOLEAN = TRUE)
...
```

Mid$

Result = **Mid$ (** *String* **,** *Start* [**,** *Length*] **)**

Return a substring containing the *Length* characters from the position *Start*. If *Length* is not specified, everything from the position *Start* is returned. If *Length* is negative, everything from the position *Start* except the (−*Length*) last characters is returned.

Example :

```
PRINT Mid$("Gambas", 3, 2)
⇨ mb
PRINT Mid$("Gambas", 4)
⇨ bas
PRINT Mid$("Gambas", 2, -1)
⇨ amba
```

Min

value = **Min (** *Expression* [, *Expression ...*] **)**

Return the smaller expression of the list. Expressions must be numbers or date/time values.

Example :

```
PRINT Min(6, 4, 7, 1, 3)
⇨ 1
PRINT Min(Now, CDate("01/01/1900"), CDate("01/01/2100"))
⇨ 01/01/1900
```

Minute

Result **= Minute (** *Date/Time* **)**

Return the minutes of a date/time value.

Example :

```
PRINT Now; " -> "; Hour(Now)
⇨ 05/16/2002 22:31:30 ->  31
```

MkDir

MkDir (*Path* **)**

Create a directory.

MOD

See *Arithmetic operators*.

Month

Result **= Month (** *Date/Time* **)**

Returns the month component of a date/time value.

Example :

```
PRINT Now; " -> "; Month(Now)
⇨ 05/16/2002 22:31:30 ->  5
```

NEXT

See *FOR*.

NEW

Variable = **NEW** *Class* [(*constructor parameters...*)] [**AS** *Name*]

Instanciate the class *Class*. The object or class where the object is instanciated is its *parent*. If a name is specified, the new object will be able to raise events by calling a public procedure or function in its parent. The name of this event handler is the name of the object followed by an underscore and the name of the event.

Example :

```
hButton = NEW Button AS "MyButton"
...
PUBLIC PROCEDURE MyButton_Click()
  PRINT "My button was clicked !"
END
```

NOT

Result **= NOT** *Expression*

Compute the logical *not* of an expression. If *Expression* is a string or an object, it returns True if *Expression* is null. See *NULL* or *IsNull* for more detail.

Example :

```
PRINT NOT TRUE
⇨ False
PRINT NOT FALSE
⇨ True
PRINT NOT 11
⇨ -12
PRINT NOT CByte(11)
⇨ 244
PRINT NOT "Gambas"
⇨ False
PRINT NOT ""
⇨ True
```

Now

Time **= Now ( )**

Returns the current date and time.

Example :

```
PRINT Now
⇨ 05/16/2002 22:31:30
```

NULL

The null constant. This constant is used to represent a null object reference, a zero length string, a null date, or an uninitialized variant.

OPEN

OPEN *File name* **FOR** (**READ** | **WRITE** | **CREATE** | **APPEND**) [**DIRECT**] **AS** #*Variable*

Opens a file for reading, writing, creating or appending data. If the **DIRECT** keyword is specified, the input–output are not buffered.

The variable receives the object that represents the opened stream.

OR

Result **=** *Expression* **OR** *Expression*

Compute the logical *or* of two expressions.

Example :

```
PRINT TRUE OR FALSE
⇨ True
PRINT FALSE OR FALSE
⇨ False
PRINT 7 OR 11
⇨ 15
```

PI

Result **= Pi (** [*Number*] **)**

Returns π * *Number*. If *Number* is not specified, it is assumed to be one.

Example :

```
PRINT Pi
⇨  3.14159265359
PRINT Pi(0.5)
⇨  1.570796326795
```

Predefined constants

Datatypes

`gb.Null`	Null value
`gb.Boolean`	Boolean value
`gb.Byte`	Byte integer number
`gb.Short`	Short integer number
`gb.Integer`	Integer number
`gb.Float`	Floating point number
`gb.Date`	Date and time value
`gb.String`	Character string
`gb.Variant`	Variant
`gb.Object`	Object reference

File types

`gb.File`	Regular file
`gb.Directory`	Directory
`gb.Device`	Special file for a device
`gb.Pipe`	Named pipe
`gb.Socket`	Special file for a socket
`gb.Link`	Symbolic link

String constants

`gb.NewLine`	Newline character. Equivalent to Chr$(13)
`gb.Tab`	Tab character. Equivalent to Chr$(9)

Sort types

`gb.Binary`	Binary sort
`gb.Case`	Case insensitive sort
`gb.Lang`	Language based sort

Predefined numeric formats

`gb.GeneralNumber`	Write a number with twelve decimal digits. Use scientific format if its absolute value is lower than 10^{-4} or greater than 10^{7}.
`gb.Fixed`	Equivalent to "0.00"
`gb.Percent`	Equivalent to "###%"
`gb.Scientific`	Write a number with its exponent and eighteen decimal digits.

Predefined date and time formats

`gb.GeneralDate`	Write a date only if the date and time value has a date part, and write a time only if it has a date part.
`gb.LongDate`	Long date format.
`gb.MediumDate`	Medium date format.
`gb.ShortDate`	Short date format.
`gb.LongTime`	Long time format.
`gb.MediumTime`	Medium time format.
`gb.ShortTime`	Short time format.

Miscellaneous formats

`gb.Standard`	Use `gb.GeneralNumber` for formatting numbers and `gb.GeneralDate` for formatting dates and times.

PRINT

PRINT *Expression* [**;** *Expression* ...] [**;**]

Print expressions to the standard output. The expressions are converted to strings by the Str() function.

If there is no semi−colon after the last expression, a newline character is printed after the last expression.

PRINT *#File* **,** *Expression* [**;** *Expression* ...] [**;**]

Same as above, except that expressions are sent to the stream *File*.

PRIVATE

See *Class Variable declaration* and *Class method declaration*.

PROCEDURE

See *Method declaration*.

PUBLIC

See *Variable declaration* and *Method declaration*.

Randomize

Randomize ( )

Initialize the pseudo−random numbers generator.

Rad

Value = **Rad (** *Angle* **)**

Convert degrees to radians.

Example :

```
PRINT Rad(90)
⇨  1.570796326795
PRINT Rad(180) – Pi
⇨  0
```

READ

READ *Variable* [**,** *Length*]

Reads the standard output as binary data whose type is given by the type of the variable. The binary representation is the one used by the **WRITE** instruction.

If *Variable* is a string, you can specify a length that indicates the number of bytes to read. If no length is specified for a string, its length is read from the stream.

READ *#File* **,** *Variable* [**,** *Length*]

Same as above, except that the data are read from the stream File.

Rename

Rename (*Old name* **,** *New name* **)**

Rename or move a file or a directory.

REPEAT

REPEAT

Begins a loop structure delimited by REPEAT ... UNTIL instructions.

RETURN

RETURN [*Expression*]

Quit a procedure or a function by returning the value of *Expression*.

Right$

Result **= Right$ (** *String* [**,** *Length*])

Returns the *Length* last characters of a string. If *Length* is not specified, the last character of the string is returned. If *Length* is negative, all the string except the (–*Length*) first characters is returned.

Example :

```
PRINT Right$("Gambas", 4)
⇨ mbas
PRINT Right$("Gambas")
⇨ s
PRINT Right$("Gambas", -1)
⇨ ambas
```

RInStr

Position **= RInStr (** *String* **,** *Substring* [**,** *Start*])

Returns the position of the last occurrence of *Substring* in *String*. If *Start* is specified, the search stops at the position *Start*.

If the substring is not found, RInStr() returns zero.

Example :

```
PRINT RInstr("Gambas is basic", "bas")
⇨ 11
PRINT RInstr("Gambas is basic", "not")
⇨ 0
```

RmDir

RmDir (*Path* **)**

Remove a directory.

Rnd

Rnd ([*Min* [**,** *Max*] **)**

Compute a pseudo−random floating point number, using the Lehmer algorithm.

- If no parameters is specified, return a pseudo−random number in the interval [0 , 1 [.
- If the first parameter is specified, return a pseudo−random in the interval [0 , *Min* [.
- If the two parameters are specified, return a pseudo−random in the interval [*Min* , *Max* [.

Example :

```
PRINT Rnd
⇨  0.019539254718
PRINT Rnd(2)
⇨  0.040205506608
PRINT Rnd(Pi, Pi(2))
⇨  3.204108046818
```

Rol

Value **= Rol (** *Number* **,** *Bits* **)**

Return *Number, Bits* bits left rotated.

Ror

Value **= Ror (** *Number* **,** *Bits* **)**

Return *Number, Bits* bits right rotated.

Round

Value = **Round (** *Number* [**,** *Digits*] **)**

Rounds a number to its nearest integer if *Digits* is not specified.

If *Digits* is specified, rounds to 10 ^ (–*Digits*).

Second

Result **= Second (** *Date/Time* **)**

Returns the seconds of a date/time value.

Example :

```
PRINT Now; " -> "; Second(Now)
⇨ 05/16/2002 22:31:30 ->  30
```

Seek

Position **= Seek (** *File* **)**

Return the current read/write position of the stream *File*.

SEEK

SEEK #*File* **,** *Position*

Define the position in the file of the next read/write operation.

SELECT

SELECT *Expression*
  [**CASE** *Expression*
  ...]
  [**CASE** *Expression*
  ...]
  [(**CASE ELSE** | **DEFAULT**)
  ...]
END SELECT

Select an expression to compare, and execute the code enclosed in the corresponding matching CASE statement. If no CASE statement matches, the DEFAULT or CASE ELSE statement is executed.

Sgn

Sign = **Sgn (** *Number* **)**

Return the sign of a number.

- If the number is zero, it returns zero.
- If the number is strictly positive, it returns the integer number +1.
- If the number is strictly negative, it returns the integer number –1.

Example :

```
PRINT Sgn(Pi)
⇨  1
PRINT Sgn(-Pi)
⇨ -1
PRINT Sgn(0)
⇨  0
```

Shl

Value **= Shl (** *Number* **,** *Bits* **)**

Return *Number*, *Bits* bits left shifted.

Example :

```
PRINT Shl(11, 3)
⇨  88
```

Shr

Value **= Shr (** *Number* **,** *Bits* **)**

Return *Number*, *Bits* bits right shifted.

Example :

```
PRINT Shr(11, 3)
⇨  1
```

Sin

Value = **Sin** (*Angle*)

Compute the sine of an angle. The angle is specified in radians.

Example :

```
PRINT Sin(Pi/2)
⇨  1
```

Sinh

Value = **Sinh** (*Number*)

Compute the hyperbolic sine of a number.

Example :

```
PRINT Sinh(1)
⇨  1.175201193644
```

Space$

String **= Space$ (** *Length* **)**

Return a string containing *Length* spaces.

Example :

```
PRINT "<"; Space$(8); ">"
⇨ <        >
```

Sqr

value = **Sqr (** *Number* **)**

Compute the square root of a number.

Example :

```
PRINT Sqr(2)
⇨  1.414213562373
```

Stat

Type **= Stat (** *Path* **)**

Return the type of a file or a directory. The global static variables of the class *File* are also initialized with information about the file : size, last modification time... See *Predefined Constants* and the class *File* for more details.

Example :

```
PRINT Stat("/home") = gb.Directory
⇨ True
```

STATIC

See *Class Variable declaration* and *Class method declaration*.

STEP

See *FOR*.

STR$

String = **Str$** (*Expression*)

Convert an expression into its printable string representation. It is the exact contrary of **Val()**.

The current localization is used to convert numbers and dates.

Example :

```
' Print on standard output or in a message

PUBLIC CONST ON_STDOUT AS Integer = 1
PUBLIC CONST ON_MESSAGE AS Integer = 2

SUB PrintOn(Where AS Integer, What AS Variant)

  IF Where = ON_STDOUT THEN
    PRINT What
  ELSE IF Where = ON_MESSAGE THEN
    Message(Str$(What))
  ENDIF

END
```

String operators

String **&** *String*	Concatenate two strings.
String **&/** *String*	Concatenate two strings that contain file names. Add a path separator between the two strings if necessary.
String **LIKE** *Pattern*	Pattern matching. See *LIKE*.
String **=** *String*	Are the two strings equal ?
String **<>** *String*	Are the two strings different ?
String **<** *String*	Is the first string lower than the second ?
String **>** *String*	Is the first string greater than the second ?
String **<=** *String*	Is the first string lower or equal than the second ?
String **>=** *String*	Is the first string greater or equal than the second ?

Note : all comparisons are case sensitive.

String$

String **= String$ (** *Length* **,** *Code* **)**

Returns a string containing *Length* times the character whose ASCII code is *Code*.

Example :

```
PRINT String$(12, Asc("*"))
⇨ ************
```

SUB

See *Class method declaration*.

Tan

value = **Tan** (*angle*)

Compute the tangent of an angle. The angle is specified in radians.

Example :

```
PRINT Tan(Pi/4)
⇨  1
```

Tanh

Value = **Tanh** (*Number*)

Compute the hyperbolic tangent of a number.

Example :

```
PRINT Tanh(1)
⇨  0.655794202633
```

THEN

See *IF*.

Time

Result **= Time (** *Date/Time* **)**

Returns the time part of a date/time value.

Example :

```
PRINT Time(Now)
⇨ 14:08:25
```

Date = Time **(** *Hours* **,** *Minutes* **,** *Seconds* **)**

Makes a time from its components.

Example :

```
PRINT Time(14, 08, 25)
⇨ 14:08:25
```

Timer

Time **= Timer ( )**

Returns the number of elapsed seconds from the beginning of the program.

Example :

```
PRINT Timer
⇨  0.291657006775
```

TO

See *FOR*.

Trim$

Result **= Trim$ (** *String* **)**

Strip white spaces from a string. A white space is any character whose ASCII code is stricly lower than 32.

Example :

```
PRINT "<"; Trim$("Gambas"); ">"
⇨ <Gambas>
PRINT "<"; Trim$("  \nGambas " & Chr$(9) & " "); ">"
⇨ <Gambas>
```

TRUE

The True constant. This constant is used to represent a true boolean value.

TRY

TRY *Statement*

Try to execute a statement, without raising an error.

Example :

```
' Remove a file even if it exists
TRY KILL FileName
```

TypeOf

Type = **TypeOf** (*Expression*)

Return the type of an expression as an integer value.

See *Predefined constants* for a list of the datatypes returned by this function.

UNTIL

UNTIL *Expression*

Ends a loop structure delimited by REPEAT ... UNTIL instructions. The loop is repeated until *Expression* is

true.

Upper$ / UCase $

Result **= Upper$ (** *String* **)**
Result **= UCase$ (** *String* **)**

Return a string converted to upper case.

Example :

```
PRINT Upper$("Gambas ALMOST Means BASIC !")
⇨ GAMBAS ALMOST MEANS BASIC !
```

Val

Expression = **Val** (*String*)

Converts a string into a boolean, a number or a date, according to the content of the string. The current localization is used to convert numbers and dates.

The conversion algorithm is the following :

- If the string can be interpreted as a date & time (with date or time separators), then the date & time is returned.
- Else, if the string can be interpreted as a floating point number, then this floating point number is returned.
- Else, if the string can be interpreted as a integer number, then this integer number is returned.
- Else, if the string is "`True`" or "`False`", then the matching boolean value is returned.
- Otherwise, `Null` is returned.

Example :

```
PRINT Val("09/06/72 01:00")
⇨ 09/06/72 01:00:00
PRINT Val("3.1415")
⇨  3.1415
PRINT Val("-25")
⇨ -25
PRINT Val("True")
⇨ True
PRINT IsNull(Val("Gambas"))
⇨ True
```

Variables declaration

[**STATIC**] (**PUBLIC** | **PRIVATE**) *Identifier* [*Array declaration*] **AS** [**NEW**] *Datatype*

This declares a class global variable.

- This variable is accessible everywhere in the class it is declared.

- If the PUBLIC keyword is specified, it is also accessible to the other classes having a reference to an object of this class.
- If the STATIC keyword is specified, the same variable will be shared with every object of this class.
- If the NEW keyword is specified, the variable is initialized with a new instance of the class specified with *Datatype*.

Example :

```
STATIC PUBLIC GridX AS Integer
STATIC PRIVATE bGrid AS Boolean

PUBLIC Name AS String
PUBLIC Control AS Object

STATIC PRIVATE Synonymous AS NEW Collection

PRIVATE hHandle[8] AS Label
```

WAIT

WAIT [*Delay*]

Calls the event loop. If *Delay* is specified, does not return until *Delay* milliseconds elaps.

WeekDay

Result **= WeekDay (** *Date/Time* **)**

Returns the week day of a date/time value. See *Predefined constants* for a list of constants associated with week days.

Example :

```
PRINT Now; " -> "; WeekDay(Now)
⇨ 05/16/2002 22:31:30 ->  4
```

WHILE

WHILE *Expression*

Begins a loop structure delimited by WHILE ... WEND instructions. The loop is repeated while *Expression* is true.

WEND

WEND

Ends a loop structure delimited by WHILE ... WEND instructions.

WITH

WITH *Expression*
  ...
END WITH

Beetween the WITH and the END WITH instruction, a expression beginning with a point is referring to *Expression.* So *Expression* must be an object.

Example :

```
WITH hButton
  .Text = "Cancel"
END WITH
```

is equivalent to

```
hButton.Text = "Cancel"
```

WRITE

WRITE *Expression*

Writes expressions to the standard output using their binary representation.

WRITE *#File* **,** *Expression*

Same as above, except that the expressions are sent to the stream *File*.

XOR

Result **=** *Expression* **XOR** *Expression*

Compute the logical *exclusive or* of two expressions.

Example :

```
PRINT TRUE XOR FALSE
⇨ True
PRINT TRUE XOR TRUE
⇨ False
PRINT 7 XOR 11
⇨ 12
```

Year

Result **= Year (** *Date/Time* **)**

Returns the year component of a date/time value.

Example :

```
PRINT Now; " -> "; Year(Now)
⇨ 05/16/2002 22:31:30 ->  2002
```