# Omnis Function Reference

TigerLogic Corporation
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# About This Manual

This manual lists all the functions available in Omnis Studio. The functions are listed in alphabetical order, but note that the external functions are prefixed with their respective package name, e.g. Fileops, OJSON, OXML, StringTable, etc. You can find a complete list of functions in Omnis in the Catalog (press F9) arranged in functional groups.

Each function listed here has the following information, as well as the syntax, description, and an Omnis code example.

| Function group | Execute on Client | Platform(s) |
|---|---|---|
| The group within the Omnis Catalog (F9). | Whether or not (YES/NO) the function can be executed in a client method in the JavaScript Client | Which platform the function is available on, including: Windows, macOS, Linux; All indicates the command is available on all platforms |

## Client Functions

The following functions can be executed in a client method in the JavaScript Client.

| | | | |
|---|---|---|---|
| abs() | acos() | alt() | asin() |
| atan() | atan2() | br() | callprivate() |
| cap() | cmd() | con() | cos() |
| ctrl() | dadd() | dat() | dim() |
| dtcy() | dtd() | dtm() | dtw() |
| dty() | errcode() | errtext() | exp() |
| flag() | fmtdatetime() | fmtshortdate() | fmtshorttime() |
| getdatetime() | getticks() | int() | isclear() |
| isnull() | isunicode() | jst() | left() |
| len() | list() | ln() | locale() |
| log() | low() | max() | mid() |
| min() | mod() | msgcancelled() | not() |
| pick() | pos() | pwr() | replace() |
| replaceall() | rgb() | right() | rnd() |
| row() | rpos() | shift() | sin() |
| sqr() | stgettext() | style() | styledtohtml() |
| tan() | tracelog() | trim() | unichr() |
| unicode() | upp() | useradians() | |

# Functions

## abs()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Number | YES | All |

### Syntax

**abs**(number)

### Description

Returns the magnitude of a real *number* ignoring its positive or negative sign.

### Example

```
Calculate lResult as abs(1002)
;  returns 1002


Calculate lResult as abs('-203.45')
;  returns 203.45


Calculate lResult as abs('12ABC')
;  returns 0
```

## acos()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Trigonometric | YES | All |

### Syntax

**acos**(*number*)

### Description

Returns the arc cosine of a *number* in the range 0 to 180 degrees (0 to pi radians if #RAD is true), or returns 0 if the number is not in the range -1 to 1.

### Example

```
Calculate lResult as acos(spr(2)/2)
;  returns 45
```

## alt()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**alt**()

### Description

Returns true if the Alt or Option key is being pressed.

# ann()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Financial | NO | All |

### Syntax

**ann**(rate,nper,pmt,pv,fv[,prd])

### Description

Evaluates an unknown for an annuity and returns the result.

The first five arguments are mandatory, but you can replace any one of them with '?' which is the unknown value returned by the function.

Parameters: *rate* is the interest rate per payment period; *nper* is the number of payment periods, which should be an integer greater than zero; *pmt* is the payment made to you (or by you) at the end of each period; *pv* is the amount paid to you (or by you) at the start of the first period; *fv* is the amount paid to you (or by you) at the end of the final period; *prd* is optional and represents a specific period which must be between 1 and *nper*; it is used for obtaining the split of interest and capital payments in a period.

The convention is that positive values for *pmt, pv* and *fv* denote a payment made *to you*, and negative amounts denote a payment made *by you*. It is important to ensure that *rate, nper* and *pmt* all refer to the same period length. The annuity is evaluated so that the sum of all payments made to you (or by you) when compounded at the interest rate evaluates to zero.

The following example shows that, a 25 year mortgage for $30000 at 11% pa interest payable monthly in arrears has monthly payments, paid by you, is equal to:

### Example

```
Calculate lAmount as rnd(ann(.11/12,25*12,'?',30000,0),2)
;  returns -294.03
```

# anna()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Financial | NO | All |

### Syntax

**anna**(rate,nper,pmt,pv,fv)

### Description

Evaluates an unknown for an annuity in advance and returns the result.

This function works in the same way as the ann() function except that the annuity is calculated in advance. The payments are assumed to be made at the start of each period instead of the end of each period.

The following example shows what the monthly payment is, using the same arguments as those used for the example for ann(), but using the **anna()** function, where the mortgage payments are assumed to be made in advance.

### Example

```
Calculate lAmount as rnd(anna(.11/12,25*12,'?',30000,0),2)
;  returns -291.36
```

# asc()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**asc**(string,position)

### Description

Returns the ASCII or Unicode value of the character at the *position* in the *string*. The first *position* in the *string* is 1.

The value returned for ASCII characters is between 0 and 255, or -1 if *position* is less than 1 or greater than the length of *string*.

### Example

```
Calculate lResult as asc('Quantity',1)
;  returns 81, that is the ASCII value of the 1st character Q


Calculate lResult as asc('Car',3)
;  returns 114, that is the ASCII value of the 3rd character r


Calculate lResult as asc('Train',9)
;  returns -1 because 9 is greater than the length of the string
```

# asin()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Trigonometric | YES | All |

### Syntax

**asin**(*number*)

### Description

Returns the arc sine of a *number* in the range -90 to 90 degrees (-pi/2 to pi/2 radians if #RAD is true), or returns 0 if the number is not in the range -1 to 1.

### Example

```
Calulate lResult as asin(sqr(3)/2)
;  returns 60
```

# atan()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Trigonometric | YES | All |

### Syntax

**atan**(*number*)

### Description

Returns the arc tangent of a *number* in the range -90 to 90 degrees (-pi/2 to pi/2 radians if #RAD is true).

### Example

```
Calculate lResult as atan(1)
;  returns 45
```

## atan2()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Trigonometric | YES | All |

### Syntax

**atan2**(*y,x*)

### Description

Returns the arc tangent of the point y,x coordinates.

### Example

```
Calculate lResult as atan2(1,1)
;  returns 45
```

## avgc()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | NO | All |

### Syntax

**avgc**(listname,column[,ignore-nulls])

### Description

Returns the average value for a list column specified by *listname* and *column*. avgc() can only be used with columns defined using variables so it cannot be used with lists defined from a SQL class.

If you set *ignore-nulls* to 1, null values are ignored and not counted. If you omit this parameter or it evaluates to zero, nulls are treated as zero values and are counted.

### Example

```
Calculate lResult as avgc(lList,lCol1,1)
;  returns the average for lCol1 not including null or zero values
```

## bdif()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bdif**(oldbinary,newbinary)

### Description

Returns a binary representation of the differences between *oldbinary* and *newbinary*.

It is useful for comparing different versions of the same file, whether it is an Omnis library, external component, picture or text file, and so on.

### Example

```
Calculate lBinDiff as bdif(lOldBinary,lNewBinary)
```

## bincheckSum()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bincheckSum**(*binary*)

### Description

Calculates an integer checksum for a *binary* field and returns the result.

Omnis generates the checksum by summing the bytes of the *binary* field, using a 32 bit number, ignoring overflow.

### Example

```
Calculate lCheckSum as bincheckSum(lBinary)
```

## bincompare()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bincompare**(binary1,binary2)

### Description

Compares two binary fields, *binary1* and *binary2*. Returns true if they are equal and false if they are not.

Fields of different length are *not* equal, meaning that the rule about extending the length of the shortest field does not apply in this case.

### Example

```
Calculate lStatus as bincompare(lBinary1,lBinary2)
```

## binfrombase64()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**binfrombase64**(*vdata*)

### Description

Decodes the binary or character *vData* from BASE64 and returns the resulting binary data. Returns NULL if *vData* is not valid BASE64.

## binfromhex()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**binfromhex**(*string*)

### Description

Returns a binary field value generated from the specified character *string*, typically generated using bintohex().

The character *string* encodes a hexadecimal value in ASCII. The *string* must not contain a leading 0x or 0X.

### Example

```
Calculate lBinary as binfromhex(lString)
```

## binfromint32()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**binfromint32**(*int32*)

### Description

Returns a binary field value containing the binary representation of the 32 bit integer *int32*.

## binfromint64()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**binfromint64**(*int64*)

### Description

Returns a binary field value containing the binary representation of the 64 bit integer *int64*.

## binlength()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**binlength**(*binary*)

### Description

Returns the length of a *binary* field in bytes.

### Example

```
Calculate lLength as binlength(lBinary)
```

## binsearch()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**binsearch**(binary1,binary2[,start-from])

### Description

Returns the zero-based position of *binary1* in *binary2*, or returns -1 if not found.

*start-from* is the zero-based index of the byte in *binary2* where the search is to start. If omitted, *start-from* defaults to zero at the start of *binary2.*

### Example

```
Calculate lPosition as binsearch(lBinary1,lBinary2,5)
```

## bintobase64()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bintobase64**(*vdata*)

### Description

Encodes *vData* as BASE64 and returns the result. *vData* can be either binary or character. If *vData* is character, Omnis converts it to UTF-8 before encoding it as BASE64.

## bintohex()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bintohex**(*binary*)

### Description

Returns a character string representing the value of a *binary* field, in ASCII hexadecimal.

### Example

```
Calculate lString as bintohex(lBinary)
```

# bintoint32()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

**Syntax**

**bintoint32**(*binary*)

**Description**

Returns a 32 bit integer value from the first 4 bytes of a *binary* field.

# bintoint64()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

**Syntax**

**bintoint64**(*binary*)

**Description**

Returns a 64 bit integer value from the first 8 bytes of a *binary* field.

# bitand()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

**Syntax**

**bitand**(binary1,binary2)

**Description**

Performs an AND operation on *binary1* and *binary2*, and returns the result.

**Example**

```
Calculate lNewBinary as bitand(lBinary1,lBinary2)
```

# bitclear()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

**Syntax**

**bitclear**(binary1,firstbitnumber,lastbitnumber)

**Description**

Clears a range of bits (all bits with numbers >=*firstBitNumber* and <=*lastBitNumber*) operating directly on *binary*. Returns a Boolean (true for success).

The function operates directly on the *binary1* argument, and returns 1 for success and 0 for failure. If the bit numbers identify some bits which are outside the current length of the binary field, Omnis extends the field by appending bytes with value zero, and clears the bits.

### Example

```
Calculate lStatus as bitclear(lBinary1,lFirstBitNumber,lLastBitNumber)
```

# bitfirst()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitfirst**(*binary*)

### Description

Returns the number of the most significant bit with value 1 in a *binary* field.

The following example sets lNumber to the bit number of the first bit set to 1. If all bits are zero, **bitfirst()** returns -1.

### Example

```
Calculate lNumber as bitfirst(lBinary)
```

# bitmid()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitmid**(binary,firstbitnumber,lastbitnumber)

### Description

Returns a binary value identified as a range of bits of a *binary* field, that is, bitmid() extracts the bits with numbers >=*firstBitNumber* and <=*lastBitNumber*.

In the following example, bit *lFirstBitNumber* of *lBinary1* becomes bit zero of *lBinary2*, and so on.

### Example

```
Calculate lBinary2 as bitmid(lBinary1,lFirstBitNumber,lLastBitNumber)
```

# bitnot()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitnot**(*binary*)

### Description

Performs a 1's complement operating directly on *binary*. Returns a Boolean (true for success).

The function operates directly on the argument *binary1*, and returns 1 for success and 0 for failure.

### Example

```
Calculate lStatus as bitnot(lBinary)
```

## bitor()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitor**(binary1,binary2)

### Description

Performs an inclusive-OR on *binary1* and *binary2*, and returns the result.

### Example

```
Calculate lStatus as bitor(lBinary1,lBinary2)
```

## bitrotatel()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitrotatel**(*binary,count*)

### Description

Rotates a *binary* field to the left, by number of bits specified in *count*. Operates directly on *binary*. Returns a Boolean (true for success).

The function operates directly on the argument, and returns 1 for success and 0 for failure. The vacated bits are replaced by the bits shifted off the left-hand end. If the specified number of bits is greater than the bit-length of the field, Omnis returns 0, and the field is unchanged.

### Example

```
Calculate lStatus as bitrotatel(lBinary,lCount)
```

## bitrotater()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitrotater**(*binary,count*)

### Description

Rotates a *binary* field to the right by number of bits specified in *count*.Operates directly on *binary*.Returns a Boolean (true for success).

The function operates directly on the argument, and returns 1 for success and 0 for failure. The vacated bits are replaced by the bits shifted off the right-hand end. If the specified number of bits is greater than the bit-length of the field, Omnis returns 0, and the field is unchanged.

### Example

```
Calculate lStatus as bitrotater(lBinary,lCount)
```

# bitset()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitset**(binary,firstbitnumber,lastbitnumber)

### Description

Sets a range of bits (all bits with numbers >=*firstBitNumber* and <=*lastBitNumber*) operating directly on *binary*. Returns a Boolean (true for success).

The function operates directly on the argument, and returns 1 for success and 0 for failure. If the bit numbers identify some bits which are outside the current length of the binary field, Omnis extends the field by appending bytes with value zero, and sets the bits.

### Example

```
Calculate lStatus as bitset(lBinary,lFirstBitNumber,lLastBitNumber)
```

# bitshiftl()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitshiftl**(binary,count)

### Description

Shifts a *binary* field to the left by a number of bits specified in *count*. Operates directly on *binary*. Returns a Boolean (true for success).

The function operates directly on the argument, and returns 1 for success and 0 for failure. Vacated bits become zero. Bits shifted past bit 0 are lost.

### Example

```
Calculate lStatus as bitshiftl(lBinary,lCount)
```

# bitshiftr()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitshiftr**(binary,count)

### Description

Shifts a *binary* field to the right by a number of bits specified in *count*. Operates directly on *binary*. Returns a Boolean (true for success).

The function operates directly on the argument, and returns 1 for success and 0 for failure. Vacated bits become zero. Bits shifted past the right-most bit are lost.

### Example

```
Calculate lStatus as bitshiftr(lBinary,lCount)
```

## bittest()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bittest**(binary,firstbitnumber,lastbitnumber)

### Description

Tests a range of bits (all bits with numbers >=*firstBitNumber* and <=*lastBitNumber*) in *binary*. *binary* must either be a binary field, or a long integer, you cannot use a function in the first argument. Returns a Boolean (true if at least one bit in the range is set).

If any are 1, the function returns 1, otherwise it returns zero.

### Example

```
Calculate lStatus as bittest(lBinary,lFirstBitNumber,lLastBitNumber)
```

## bitxor()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bitxor**(binary1,binary2)

### Description

Performs an exclusive-OR (XOR) on *binary1* and *binary2*, and returns the result.

### Example

```
Calculate lNewBinary as bitxor(lBinary1,lBinary2)
```

## br()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**br**()

### Description

Returns a style sequence that can be used as a line break in styled text when using the JavaScript client (equivalent to style(kEscJsNewline)).

# bundif()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bundif**(differences,binary)

### Description

Restores an older version of a *binary* file using the *differences* created by the bdif() function. The differences must be passed to an older version of the same *binary* file.

### Example

```
Calculate lBinary2 as bundif(lBinDiff,lBinary1)
```

# bytecon()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bytecon**(binary1,binary2)

### Description

Concatenates two binary fields *binary1* and *binary2*, and returns the result.

Note that **bytecon()** concatenates *binary2* on to the end of *binary1*.

### Example

```
Calculate lNewBinary as bytecon(lBinary1,lBinary2)
```

# bytemid()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**bytemid**(binary1,firstbytenumber,lastbytenumber)

### Description

Returns a binary value identified as a range of bytes in a binary field (all bytes between *firstByteNumber* and *lastByteNumber* inclusive).

The following example sets *lBinary2* to the value generated by extracting bytes l*FirstByteNumber* to *lSecondByteNumber* inclusive of *lBinary1*. Thus byte 0 of *lBinary2* becomes byte *lFirstByteNumber* of*lBinary1,* and so on.

### Example

```
Calculate lBinary2 as bytemid(lBinary1,lFirstByteNumber,lSecondByteNumber)
```

# byteset()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**byteset**(binary,bytenumber,value)

### Description

Sets byte *byteNumber* in *binary* to the specified *value*, operating directly on *binary*. Returns a Boolean (true for success).

The function operates directly on the argument, and returns 1 for success and 0 for failure.

### Example

```
Calculate lStatus as byteset(lBinary1,lByteNumber,lValue)
```

# callprivate()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**callprivate**(method[,parameters...])

### Description

Calls the private *method* with the specified *parameters* and returns its return value.

# cap()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**cap**(string)

### Description

Returns the capitalized representation of a *string*, that is, the first letter of each and every word in the string is capitalized.

### Example

```
Calculate lResult as cap('gRaVeS, hutton, MONKS')
;  returns 'Graves, Hutton, Monks'


Calculate lResult as cap('on the 8TH day')
;  returns 'On the 8th Day'
```

# cdif()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Class | NO | All |

### Syntax

**cdif**(oldclass,newclass)

### Description

Returns a list of differences between two classes *oldclass* and *newclass*, the first parameter is the older class, and the second parameter is the newer class.

The **cdif()** function returns a binary representation of differences between two Omnis library classes of the same type, for example, you can compare two versions of the same window class.

An #ERRCODE value of 8095 means that the classes are identical. If an error occurs during execution, the flag is set to false, and #ERRCODE and #ERRTEXT will contain the error number and text.

### Example

```
Calculate lOldClass as $windows.window1.$classdata
Calculate lNewClass as $windows.window2.$classdata
Calculate lDiffList as cdif(lOldClass,lNewClass)
```

# chartoutf8()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Unicode | NO | All |

### Syntax

**chartoutf8**(*string*)

### Description

Returns the binary value which is the UTF-8 encoding of the character *string*.

# chk()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**chk**(string1,string2,string3)

### Description

Returns true or false depending on a character-by-character comparison of *string1* with *string2* and *string3* using the ASCII value of each character for the basis of the comparison.

Firstly, each character of *string2* is compared with the corresponding character of *string1* to ensure that, for each character, *string2*<=*string1*. A character is said to be less than or greater than another character if its ASCII code is less than or greater than the ASCII code of the corresponding character. Secondly and provided *string2*<=*string1*, each character of *string1* is compared with the corresponding character of *string3* to ensure that, for each

character, *string1*<=*string3*. If *both* conditions are true, that is *string2*<=*string1* and *string1*<=*string3* are both satisfied, the function returns true, otherwise it returns false.

### Example

```
Calculate lStatus as chk('b',' ','c')
;  returns true because b>' ' and b<c


Calculate lStatus as chk('B','B','C')
;  returns true because B=B and B<C


Calculate lStatus as chk('SD04','AA00','ZZ99')
;  returns true, since for each character of the respective strings,
;  it is true that SD04>AA00 and SD04<ZZ99
;  that is, S>=A, D>=A, 0>=0, 4>=0
;  and S<=Z, D<=Z, 0<=9, 4<=9


Calculate lStatus as chk('SDA4','AA00','ZZ99')
;  returns false, since in comparing the strings,
;  SDA4 and ZZ99, the character A>9


Calculate lStatus as (chk('SDA4','AA00','ZZ99')+1=0+1)
;  returns true
```

# chr()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**chr**(asciicode1[,asciicode2]...)

### Description

Returns a string formed by concatenating the supplied ASCII character codes.

Any argument with a value less than zero or greater than 255 is ignored.

Only normal printable characters should be stored in Character or National fields. Also, since Omnis uses the character with ASCII value 0 as the end of string marker, this means that if you use this character in any other way, the part of the string following the 0 value is ignored. Control characters in the data file may also cause problems when trying to import or export data. Records with index fields which contain characters with ASCII value 255 may not have the correct index order. It is safe, however, to have unprintable characters in the text for the Transmit text commands.

### Example

```
Calculate lResult as chr(66,111,111,107)
;  returns 'Book'


Calculate lResult as chr(257,-1,66,111,111,107)
;  returns 'Book', the first two parameters are ignored
```

# cmd()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**cmd**()

### Description

Returns true if the Cmd is being pressed.

# cmp()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Financial | NO | All |

### Syntax

**cmp**(rate,periods)

### Description

Returns the compound interest multiplier for a given interest *rate* over a given number of *periods*.

That is, *cmp()* evaluates the expression (1+(*rate*/100))*periods*; the interest rate is given by the argument *rate*/100.

### Example

```
Calculate lAmount as cmp(10,10)     ;; = (1+(10/100))10
;  returns 2.59 (to 2 decimal places)


Calculate lAmount as cmp(15,25)     ;; = (1+(15/100))25
;  returns 32.92 (to 2 decimal places)


Calculate lAmount as cmp(5,0.5)     ;; = (1+(5/100))0.5
;  returns 1.02 (to 2 decimal places)
```

# cnubintolist()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | NO | All |

### Syntax

**cnubintolist**(*binary*)

### Description

Returns the list created by converting *binary* to a list, where *binary* was created in non-Unicode Studio by assigning a list to a binary variable.

### Example

```
;  Assign a list to a binary variable created in a non-Unicode Studio
Calculate lBinary as lOldList
```

```
;  Converts a binary variable to a list in a Unicode Studio
Calculate lNewList as cnubintolist(lBinary)
```

# compress()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Compression | NO | All |

### Syntax

**compress**(*binary*)

### Description

Compresses the data stored in the specified *binary* variable and returns the binary compressed data.

It uses the ZLIB compression algorithm to compress the binary variable. To uncompress the result, and return the original uncompressed value, use uncompress().

### Example

```
Calculate lCompressed as compress(lOriginal)
```

# con()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**con**(string1,string2[,string3]...)

### Description

Returns a string by concatenating two or more *string* values.

**con()** has a limit of 100 parameters. You can exceed this limit by using Calculate *CVAR1 as con(CVAR2,CVAR3)* where CVAR2 has 99 items and CVAR3 has 99 items, and so on.

### Example

```
Calculate lFirstName as 'Dick'
Calculate lLastName as 'Rawkins'
Calculate lName as con(lFirstName,' ',lLastName)
;  returns 'Dick Rawkins'


Calculate lResult as con('Omnis',' library')
;  returns 'Omnis library'


Calculate lResult as con('May ',8,'th 200',3)
;  returns 'May 8th 2003'


;  Note the use of spaces in the above examples
```

# cos()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Trigonometric | YES | All |

### Syntax

**cos**(*angle*)

### Description

Returns the Cosine of an *angle* where the *angle* is in degrees (or radians if #RAD is true).

### Example

```
Calculate lResult as cos(60)
;  returns 0.5
```

# ctrl()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**ctrl**()

### Description

Returns true if the Control key is being pressed.

# cundif()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Class | NO | All |

### Syntax

**cundif**(differences,class)

### Description

Restores an older version of a *class* using the list of *differences* created by cdif().

The **cundif()** function is used to roll back the changes made to a class after having compared two versions of the same class with cdif(). The list of binary *differences* must be passed to an older version of the same class.

Note that you can store multiple sets of differences or "revisions" of a class and, at any time, "reconstruct" an earlier version by successively applying **cundif()** against that particular class.

### Example

```
;  having created lDiffList with cdif()...
Calculate lOldClass as cundif(lDiffList,lNewClass)
If #ERRCODE
  OK message  (Sound bell) {[#ERRTEXT]}
  Quit method
End If
```

```
;  now assign the binary field containing the class to a window class
Calculate lVar1 as $windows.window1.$classdata.$assign(lOldClass)
If lVar1=0     ;; class in lOldClass is not a valid window
  OK message  (Sound bell) {The assign has failed...}
  Quit method
End If
```

# dadd()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**dadd**(datepart,number,date)

### Description

Adds a *number* of date parts to *date*.

The *datepart* argument can be a number of days, months, or quarters depending on the constant you use. The *number* is interpreted as the number of date or time parts or units specified by a *datepart* constant. The *number* argument must be an integer when specifying *datepart* as kYear, kMonth, kWeek, kQuarter, or kCentiSecond (the fractional part of a number is ignored). You can use fractions for the other date parts.

The datepart constants that you can use are: kYear, kMonth, kWeek, kQuarter, kDay, kHour, kMinute, kSecond, kCentiSecond.

### Example

```
Calculate lDate as dadd(kDay,3,#D)
;  returns May 11, 2003, that is, 3 days are added, assume #D is May 8, 2003


Calculate lDate as dadd(kWeek,1.2,#D)
;  returns May 16, 2003, that is, 1 week is added, the fraction is ignored, assume
#D is May 8, 2003
```

# dat()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**dat**(datestring|number[,dateformat])

### Description

Converts a *datestring* or *number* to a date value using an optional *dateformat* string and returns the result. JavaScript client-executed methods do not support *number*.

If you do not specify a *dateformat,* the first argument is converted using #FD. You can use the following symbols in the *dateformat* string:

| | | | |
|---|---|---|---|
| Y | Year (03) | d | Day (12th) |

| | | | |
|---|---|---|---|
| y | Year (2003) | W | Day of week (5) |
| C | Century (20) | w | Day of week (Friday) |
| M | Month (06) | V | Short day of week (Fri) |
| m | Month (JUN) | E | Day of year (1-366) |
| n | Month (June) | G | Week of year (1-52) |
| D | Day (12) | F | Week of month (1-6) |

### Example

```
Calculate Calculate lDate as dat('May 8th, 03')
;  returns '8 MAY 03' if #FD = 'D m Y'

Calculate lDate as dat('May 8th, 2003','MDY')
;  returns 050803

Calculate lDate as dat(91,'w, d n, y')
;  returns 'Monday, 1st April, 1901'  i.e. the 91st day of 1901
```

# ddiff()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**ddiff**(datepart,date1,date2)

### Description

Returns the difference between two dates, *date1* and *date2*, in the units specified by a *datepart* constant; the specified dates are included in the evaluation.

When you specify one of the day of the week constants (kSunday thru kSaturday) as the *datepart* argument, you get the number of occurrences of that day between the two dates. When you specify kYear,kQuarter, kMonth, or kWeek as the *datepart* argument, the function counts the end of years, quarters, months, or weeks between the two dates.

The datepart constants that you can use are: kYear, kMonth, kWeek, kQuarter, kDay, kSunday thru kSaturday, kHour, kMinute, kSecond, kCentiSecond.

### Example

```
Calculate lDiff as ddiff(kMonth,"1/31/03","3/1/03")
;  returns 2

Calculate lDiff as ddiff(kDay,"4/8/03",#D)
;  returns 30, the number of days between the two dates, assume #D is May 8, 2003
```

# decstr()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**decstr**(string[,key,unicode=ktrue])

### Description

Decodes *string* (encoded with encstr()) using *key* and returns result. *key* can be a string of 1-255 characters in length, previously used with encstr(). If omitted, uses the default *key*.
If *unicode* false and *string* not marked as Unicode, string must have been encoded by non-Unicode Omnis.

Note that decstr(encstr(string,key),key) = string.

### Example

```
Calculate lEncoded as encstr('Testing',10)
Calculate lDecoded as decstr(lEncoded,10)
;  returns the original string 'Testing'
```

# decxtea()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**decxtea**(binary,key)

### Description

Returns the binary result of decrypting *binary* (previously encoded using encxtea()) with the binary *key*; the *key* must be 128 bits long.

# dim()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**dim**(datestring,number)

### Description

Increments a *datestring* by a *number* of months and returns the result.

Months containing different numbers of days are accounted for. For example, Jan 31 96 increased by one month gives Feb 29 96, but beware, Feb 29 96 decreased by one month (using a negative value) gives Jan 29 96, not Jan 31 96.

### Example

```
Calculate lDate as dim(dat('5/8/03'),15)
;  returns 'AUG 8 04', if #FD = 'm D Y'


Calculate lDate as dim(dat('5/8/03'),-1)
;  returns 'APR 8 03', if #FD = 'm D Y'
```

# dname()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**dname**(datepart,date)

### Description

Returns the name of the day or month of a specified *date*, depending on a *datepart* constant which can be either kMonth or kDay.

### Example

```
Calculate lDate as dname(kMonth,#D)
;  returns May, assumes #D is May 8, 2003
```

# DNet.$addclass()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| DNet | NO | All |

### Syntax

**DNet.$addclass**(*FileName*)

### Description

Loads classes from *FileName* (or FileNames if comma-separated).

# DNet.$basefolder()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| DNet | NO | All |

### Syntax

**DNet.$basefolder**()

### Description

Returns the base folder of the .NET classes.

# DNet.$getenum()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| DNet | NO | All |

### Syntax

**DNet.$getenum**(*EnumName*)

### Description

Returns the value of the fully qualified specified enum (e.g. System.IO.FileMode.Open).

# dpart()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**dpart**(datepart,date)

### Description

Returns a number that represents a part of the specified date depending on the *datepart* constant used.

This is useful when you want to know the week number (that is, the week of the year; use kWeek), the day of the year or the day of the week, and so on.

The datepart constants that you can use are: kYear, kMonth, kWeek, kDayofYear, kQuarter, kMonthofQuarter, kWeekofQuarter, kDayofQuarter, kWeekofMonth, kDay, kDayofWeek, kHour, kMinute,kSecond, kCentiSecond.

When this function returns the week of the year (kWeek) the calculation is based on 1 Jan being the first day of the first week of the year, the last day of the year is week 53.

### Example

```
Calculate lDate as dpart(kWeek,#D)
;  returns 19, the week number, assume #D is May 8, 2003


Calculate lDate as dpart(kMonth,#D)
;  returns 5, the month number, assume #D is May 8, 2003
```

# dtcy()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**dtcy**(datestring)

### Description

Returns the year and century of a *datestring* as a string.

### Example

```
Calculate lDate as dtcy(#D)
;  returns '2003', assume #D is May 8, 2003


Calculate lDate as dtcy('05 08 03')
;  returns '2003', assume #D is May 8, 2003
```

# dtd()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**dtd**(datestring[,jsnumber=kfalse])

### Description

Returns the day part of a *datestring*. For JavaScript client-executed code, *jsnumber* kTrue returns a number rather than a string; in all other cases returns a string unless it is part of a calculation.

### Example

```
Calculate lDate as dtd(dat('May 8 03'))
;  returns '8th'


Calculate lDate as con(dtd(dat ('May 8 03')),' day')
;  returns '8th day'


Calculate lDate as dtd(dat('May 8 03'))+20
;  returns 28
```

## dtm()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**dtm**(datestring[,jsnumber=kfalse])

### Description

Returns the month part of a *datestring*. For JavaScript client-executed code, *jsnumber* kTrue returns a number rather than a string; in all other cases returns a string unless it is part of a calculation.

### Example

```
Calculate lDate as dtm(dat('May 8 2003'))
;  returns 'May'


Calculate lDate as dtm(dat('May 8 03'))+20
;  returns 25


Calculate lDate as dtm(dat(dat('May 8 03')+30))
;  returns 'June'
```

## dtw()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**dtw**(datestring[,jsnumber=kfalse])

### Description

Returns the day of the week of a *datestring*. For JavaScript client-executed code, *jsnumber* kTrue returns a number rather than a string; in all other cases returns a string unless it is part of a calculation.

### Example

```
Calculate lDate as dtw(dat('May 8 1977'))
;  returns 'Sunday'


Calculate lDate as dtw(dat('May 8 03'))+20
;  returns 24


Calculate lDate as dtw(dat(dat('May 8 03')+20))
;  returns 'Wednesday'
```

# dty()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**dty**(datestring[,jsnumber=kfalse])

### Description

Returns the year part of a *datestring*. For JavaScript client-executed code, *jsnumber* kTrue returns a number rather than a string; in all other cases returns a string unless it is part of a calculation.

The string representation of the year part of a date is the set of numeric characters representing the year, that is, 00, 01, 02, 03, and so on, while the numeric representation is the number of years since the start of the century.

### Example

```
Calculate lDate as dty(dat('8 May 03'))
;  returns '03'


Calculate lDate as dty(dat('May 8 03'))+20
;  returns 23
```

# encstr()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**encstr**(string[,key])

### Description

Encodes the *string* using *key* and returns the result. *key* can be a string of 1-255 characters in length. If omitted, Omnis uses the default *key*. encstr() marks the string to indicate that it was encoded using Unicode Omnis.

The return value of **encstr()** is a string that is difficult to decode without knowing the key. To decode the string, and return the original value, use the function decstr*().*

### Example

```
Calculate lEncoded as encstr('Testing',10)
;  encodes the string 'Testing' with the key 10
```

## encxtea()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Binary Field | NO | All |

### Syntax

**encxtea**(binary,key)

### Description

Returns the binary result of encrypting *binary* using the eXtended Tiny Encryption Algorithm (XTEA) with the binary *key*; the *key* must be 128 bits long.

## errcode()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**errcode**()

### Description

Returns #ERRCODE.

## errtext()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**errtext**()

### Description

Returns #ERRTEXT.

## eval()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**eval**(*string*)

### Description

Evaluates a calculation expressed as a character string and returns the result.

For example, if *lVar2* contains the string '3*4/2', *eval(lVar2*) returns the result 6. You should use this function with extreme care because a runtime error will occur if the string is not a valid calculation. You can use the Test for valid calculation command to test a string before attempting to evaluate it.

### Example

```
Calculate lVar2 as '3*lVar1/15.5'
Test for valid calculation {eval(lVar2)}
If flag true
  Calculate lTax as eval(lVar2)
End If
```

# evalf()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**evalf**(fieldname|variable)

### Description

Evaluates a calculation held as a string but stores the calculation in tokenized form back in *fieldname* or *variable*.

The function **evalf()** is faster than the equivalent eval(); you should use it when your code will repeat an evaluation several times. You should use it in the Set search as calculation command and as the calculation for a window list field.

**evalf()** takes a single argument that must be a *fieldname* or *variable*. If the contents of this field or variable is the text for a valid calculation, **evalf()** returns the result of the calculation, else a runtime error occurs. At the same time, the tokenized form of the calculation is stored back in the field or variable, so that next time **evalf()** is called, there is no need to tokenize or check the string. Tokenizing a string is part of the interpretation process; once done, Omnis can evaluate the calculation quickly. If you change the contents of the field or variable **evalf()** uses, Omnis will recognize that the new string requires checking and tokenizing.

### Example

```
Test for valid calculation {evalf(lSearch)}
If flag true
  Set search as calculation {evalf(lSearch)}
End If
Find first on lTown (Use search)


Calculate lVar1 as 'lTax*100'
Calculate lTotal as lVar2+evalf(lVar1)
```

# exp()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Logarithmic | YES | All |

### Syntax

**exp**(number)

### Description

Returns e raised to the power of a given *number*, or 1e100 on overflow.

### Example

```
Calculate lResult as exp(0.5)
;  returns 1.6487
```

## fact()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Number | NO | All |

### Syntax

**fact**(*number*)

### Description

Returns the factorial of a *number* rounded to an integer first. If *number* <= 0, 1 is returned, and if *number* >= 70, 1e100 is returned.

### Example

```
Calculate lResult as fact(4)
;  returns 24, that is 4*3*2*1
```

## fday()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**fday**(datepart,date)

### Description

Returns the date of the first day of the year, month, week or quarter in which the specified *date* falls.

The period is specified using one of the following *datepart* constants: kYear, kQuarter, kMonth, kWeek.

### Example

```
Calculate lDate as fday(kWeek,#D)
;  returns May 4, 2003 if the start of the week is set to Sunday


Calculate lDate as fday(kQuarter,#D)
;  returns April 1 2003, that is, the first day of the quarter in which today
falls, #D is May 8, 2003
```

## FileOps.$changeworkingdir()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$changeworkingdir**(*cPath*)

### Description

Changes the current working directory to the directory named in *cPath*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

**$changeworkingdir()** only switches between directories on the same drive, not between drives. The function returns an error code, or zero if successful: see the FileOps function error codes.

Note: Applications on macOS do not have a working directory. If you use this function on macOS, it returns the error code kFileOpsNoOperation.

### Example

```
Switch platform()
  Case 'X'     ;; for macOS
    Quit method      ;; working directories not supported
  Case 'U'     ;; for Linux
    Do FileOps.$changeworkingdir('/omnis/examples') Returns lError
  Default     ;; for Windows platforms
    Do FileOps.$changeworkingdir('c:\omnis\examples') Returns lError
End Switch
OK message  {Working directory is now: [FileOps.$getworkingdir()]}
```

## FileOps.$converthfspathtoposixpath()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | macOS |

### Syntax

**FileOps.$converthfspathtoposixpath**(*cHfsPath,&cPosixPath*)

### Description

Converts an HFS file path to a POSIX file path. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

An HFS file path is colon-delimited, where a leading colon indicates a relative path, otherwise the first component denotes the volume. A POSIX path is slash-delimited.

On any other platform, other than macOS, **$converthfspathtoposixpath()** simply copies *cHfsPath* to *cPosixPath.*

### Example

```
Do FileOps.$converthfspathtoposixpath(":Applications:Calculator",lPosixPath)
;  lPosixPath is returned as "Applications/Calculator"
```

## FileOps.$convertposixpathtohfspath()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | macOS |

### Syntax

**FileOps.$convertposixpathtohfspath**(*cPosixPath,&cHfsPath*)

### Description

Converts a POSIX file path to an HFS file path. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

An HFS file path is colon-delimited, where a leading colon indicates a relative path, otherwise the first component denotes the volume. A POSIX path is slash-delimited.

On any other platform, other than macOS, **$convertposixpathtohfspath()** simply copies *cPosixPath* to *cHfsPath.*

### Example

```
Do FileOps.$convertposixpathtohfspath("Applications/Calculator",lHfsPath)
;  lHfsPath is returned as ":Applications:Calculator"
```

## FileOps.$copyfile()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$copyfile**(*cFromPath,cToPath*)

### Description

Copies the file specified in *cFromPath* to the file *cToPath*. The file named in *cToPath* must not already exist. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

*cToPath* is the path to destination folder into which the file will be copied; the file to be copied must not already exist in the destination folder.

The function returns an error code, or zero if successful: see the FileOps function error codes.

To move a file, rather than copy it, use $movefile().

### Example

```
Do FileOps.$copyfile('c:\omnis\test.txt','c:\examples\test.txt') Returns lError
;  copies 'test.txt' to the 'examples' folder

Do FileOps.$copyfile('c:\omnis\test.txt','c:\examples\test2.txt') Returns lError
;  copies 'test.txt' to 'test2.txt' in the 'examples' folder

Do FileOps.$copyfile('c:\omnis\test.txt','c:\omnis\test2.txt') Returns lError
;  copies 'test.txt' to 'test2.txt' in the same folder
```

## FileOps.$createdir()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$createdir**(*cPath*)

### Description

Creates a directory with the pathname *cPath*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

With the exception of the last directory, all directories specified in the *cPath* parameter must already be present.

The function returns an error code, or zero if successful: see the FileOps function error codes.

### Example

```
Do FileOps.$createdir('c:\omnis\examples\extcomp\clock') Returns lError
;  creates the 'clock' folder assuming c:\omnis\examples\extcomp is a valid path
```

## FileOps.$deletefile()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$deletefile**(*cPath*)

### Description

Deletes the file or folder named *cPath*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

Files deleted with **$deletefile()** are not moved into the Recycled bin or Trash can, they are deleted irreversibly. You can delete a folder with **$deletefile()**, but only if it is empty. The function returns an error code, or zero if successful: see the FileOps function error codes.

### Example

```
Do FileOps.$deletefile('c:\omnis\examples\extcomp\test1.txt') Returns lError
;  deletes 'test1.txt' from 'c:\omnis\examples\extcomp'

Do FileOps.$changeworkingdir('c:\omnis') Returns lError
Do FileOps.$deletefile('test2.txt') Returns lError
;  deletes 'test2.txt' at the current folder 'c:\omnis'

Do FileOps.$deletefile('c:\omnis\examples\extcomp\clock') Returns lError
;  deletes the 'clock' folder if empty
```

## FileOps.$doesfileexist()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$doesfileexist**(*cPath*)

### Description

Returns true if the file or folder named *cPath* exists. Otherwise, it returns false. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

### Example

```
Switch platform()
  Case 'X'     ;; for macOS
    Do FileOps.$doesfileexist('/Omnis/Tutorial/mylibs.lbs') Returns lStatus
  Case 'U'     ;; for Linux
    Do FileOps.$doesfileexist('/omnis/tutorial/mylib.lbs') Returns lStatus
```

```
   Default     ;; for Windows
     Do FileOps.$doesfileexist('c:\omnis\tutorial\mylibs.lbs') Returns lStatus
End Switch
;  lStatus is true if 'mylib.lbs' exists in the Omnis tutorial
```

# FileOps.$filelist()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$filelist**(iInclude,cPath[,iInformation,cFilter,&cErrorText])

### Description

Returns a list of files, directories, and volumes at the location specified in *cPath*. Errors are reported to *cErrorText*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

The parameter iInclude specifies what to include in the list using a combination of the constants kFileOpsIncludeFiles, kFileOpsIncludeDirectories, and kFileOpsIncludeVolumes. Use + to combine the constants.

If you use kFileOpsIncludeVolumes, then the function adds a line for each volume to the start of the list. The remaining lines in the list, or all lines if you do not use kFileOpsIncludeVolumes, comprise a line for each file or directory in the directory cPath. You can restrict the files returned in the list using the optional filter cFilter. Note that cFilter does not apply to volume or directory names. The filter is a semicolon separated list of file-matching specifications. On all platforms, a file-matching specification can have the form *.<ext>, to match all files with the extension <ext>, or *.* to match all files. On macOS, a file-matching specification can also have the form 'TYPE' , 'TYPE,CREATOR', or ',CREATOR', where TYPE and CREATOR are the 4 character, case-sensitive Mac file type and creator. Note that in this case, the single quotes are part of the file-matching specification. Example file-matching specifications:

*.txt Matches files with .txt as their extension

*.txt;*.lbs Matches files with .txt or .lbs as their extension

"TEXT";",OO$$";*.txt Matches files of type TEXT, or created by Omnis Studio, or with .txt as their extension.

"OO$A,OO$$" Matches Omnis libraries used under macOS.

You specify the information to be returned by passing information as a combination of the kFileOpsInfo... constants listed in the following table. If you omit iInformation, only the name is returned. The returned list contains a column for each kFileOpsInfo... constant you specify. The columns you specify occur in the same order as the table.

| Col name | information constant | description |
|---|---|---|
| name | kFileOpsInfoName | name of the file |
| name83 | kFileOpsInfoName83 | DOS 8.3 name of the file |
| fullname | kFileOpsInfoFullName | full pathname of the file |
| readonly | kFileOpsInfoReadOnly | file's read-only status |
| hidden | kFileOpsInfoHidden | file's hidden status |

| | | |
|---|---|---|
| size | kFileOpsInfoSize | logical size of file |
| actualsize | kFileOpsInfoActualSize | physical size of file on disk; same as logical size under Windows |
| created | kFileOpsInfoCreated | date and time the file was created |
| modified | kFileOpsInfoModified | date and time the file was modified |
| creator | kFileOpsInfoCreatorCode | the file's creator under macOS, blank under Windows |
| type | kFileOpsInfoTypeCode | the file's type under macOS, the file extension under Windows |

The function returns an empty list if an error occurs. The FileOps object supports 64-bit integers for file sizes and for offsets, etc in files.

### Example

```
Do FileOps.$filelist(kFileOpsIncludeFiles+kFileOpsIncludeDirectories,sys(115))
Returns lFileList
;  returns a list of files and directories in the main Omnis folder

Do FileOps.$filelist(
kFileOpsIncludeFiles,con(sys(115),'external'),kFileOpsInfoName+kFileOpsInfoCreated
+kFileOpsInfoSize,'*.dll') Returns lFileList
;  returns a list of DLLs in the Omnis\External folder including the name, size,
creation date and time of each file

Do FileOps.$filelist(
kFileOpsIncludeFiles,'c:\windows',kFileOpsInfoSize+kFileOpsInfoFullName+kFileOpsIn
foReadOnly+kFileOpsInfoCreated) Returns lFileList
;  returns a list of files in the c:\windows folder including the fullname, read-
only, size, creation date and time of each file
```

# FileOps.$getfileinfo()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$getfileinfo**(*cPath,iInformation*)

### Description

Returns a list of file information for the file named *cPath*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

You specify the information to be returned by passing iInfoFlags as a combination of the kFileOpsInfo... constants listed in the following table. If you omit iInfoFlags, only the name is returned. The returned list contains a column for each kFileOpsInfo... constant you specify. The columns you specify occur in the same order as the table.

| Col name | info flags constant | description |
|---|---|---|
| name | kFileOpsInfoName | name of the file |

| | | |
|---|---|---|
| name83 | kFileOpsInfoName83 | DOS 8.3 name of the file |
| fullname | kFileOpsInfoFullName | full pathname of the file |
| readonly | kFileOpsInfoReadOnly | file's read-only status |
| hidden | kFileOpsInfoHidden | file's hidden status |
| size | kFileOpsInfoSize | logical size of file |
| actualsize | kFileOpsInfoActualSize | physical size of file on disk; same as logical size under Windows and Unix |
| created | kFileOpsInfoCreated | date and time the file was created |
| modified | kFileOpsInfoModified | date and time the file was modified |
| creator | kFileOpsInfoCreatorCode | the file's creator under macOS, blank under Windows and Unix |
| type | kFileOpsInfoTypeCode | the file's type under macOS, the file extension under Windows and Unix |
| linkedname | kFileOpsInfoLinkedName | macOS: the path of the linked file (if any)<br>Windows: the path of the shortcut target (if any)<br>Unix: the path of the symbolic link target (if any) |
| isdirectory | kFileOpsInfoIsDirectory | if the path specified points to a directory |

The function returns an empty list if an error occurs. The FileOps object supports 64-bit integers for file sizes and for offsets, etc in files.

**Example**

```
Do sys(10) Returns lPath
;  returns the name and path of the current library


Do
FileOps.$getfileinfo(lPath,kFileOpsInfoName+kFileOpsInfoSize+kFileOpsInfoCreated)
Returns lFileList
;  returns the name, size, creation date and time of the current library


Do lFileList.$redefine(lFilename,lSize,lCreated)
Do lst(lFileList,1,lSize) Returns lSize
;  returns the value in the size column
```

# FileOps.$getfilename()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$getfilename**(&cPath[,cPrompt,cFilter,cInitialDirectory,iAppflags])

### Description

Opens the standard Open file dialog.

You can specify the dialog title in *cPrompt*, and restrict the files displayed using a filter passed in *cFilter*. The filter comprises one or more entries separated by the vertical bar character '|'. Each filter entry has two components, again separated by a vertical bar. The filter entries populate the file-type selection dropdown or popup list. The first component of an entry is the text to display in the dropdown or popup list. The second component is a file-matching specification. On all platforms, a file-matching specification can have the form *.<ext>, to match all files with the extension <ext>, or *.* to match all files. On macOS, a file-matching specification can also have the form TYPE or TYPE,CREATOR, where TYPE and CREATOR are the 4 character, case-sensitive Mac file type and creator.
Example *cFilter* parameters:

| | |
|---|---|
| Text files\|*.txt | Matched all files with .txt as their extension |
| Text files\|*.txt\|Omnis Libraries\|OO$A,OO$$ | The first entry matches all files with .txt as their extension. The second entry matches all Omnis Studio libraries used under macOS. |

You can also specify the initial directory for the Open dialog in *cInitialDirectory*.

The *iAppflags* parameter only applies when running on macOS. It is optional; if specified, it must be a combination of the following constants:

| | |
|---|---|
| kFileOpsSelectApps | Allows applications to be selectable within the dialog |
| kFileOpsOpenApps | Allows the dialog to browse the content of applications |

Note that kFileOpsOpenApps automatically implies kFileOpsSelectApps, although it is valid to specify both flags (kFileOpsSelectApps + kFileOpsOpenApps).

The name and full path of the file selected by the user is returned in the *cPath* parameter. Note that the file is not open: you must do something with the file name and path returned. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

Note that if the file selected is an alias/shortcut/link, then the returned value is the result of resolving the alias/shortcut/link to its target, not the path of the alias/shortcut/link.

**$getfilename()** returns true if the user selected a file and pressed OK. Otherwise, it returns false, meaning that the user pressed Cancel.

### Example

```
Do FileOps.$getfilename(lPath,'Please locate the Omnis help file','Help
files|*.ohf',con(sys(115),'help')) Returns lError
;  returns the name and full path of the file selected, e.g.
'c:\omnis\help\omnis\omnis.ohf'
```

## FileOps.$getlasterror()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$getlasterror(**[&cErrorText])

### Description

Returns any errors in *cErrorText* from the last FileOps method that was executed.

Returns the error code from the last FileOps method executed; also optionally populates cErrorText with a description of the error. If no error occurred, the method returns zero and the error text is empty.

# FileOps.$getunixpermissions()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | Linux, macOS |

### Syntax

**FileOps.$getunixpermissions**(*cPath*)

### Description

Returns the Unix permissions string for the file identified by *cPath*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

If an error occurs, it returns an empty string. If it succeeds, then it returns the standard 10 character Unix file permissions string for the file. The first character is either d for a directory, or - for a file. The remaining 9 characters are split into three groups of three characters. The groups are for the user categories owner, group and other, in that order. The characters within each group have the following meanings:

| Character index | Value |
|---|---|
| 1 | r means that members of the user category can read the file; - means they cannot. |
| 2 | w means that members of the user category can write to the file; - means they cannot. |
| 3 | x means that members of the user category can execute the file; - means they cannot. |

### Example

```
Do FileOps.$getunixpermissions('/omnis/myfile') Returns lPermissions
;  returns '-rwxr-xr-x' meaning that the file is only writable by its owner, and
readable and executable by all users
```

# FileOps.$getworkingdir()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | Windows |

### Syntax

**FileOps.$getworkingdir**()

### Description

Returns the current working directory (no parameters required), so is only useful when running in Windows. The function returns an empty string if an error occurs.

Note: Applications on macOS do not have a working directory. If you use this function on macOS, it returns an empty string.

### Example

```
Do FileOps.$changeworkingdir(sys(115)) Returns lError
Do FileOps.$getworkingdir() Returns lWorkDir
```

# FileOps.$movefile()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$movefile**(*cFromPath,cToPath*)

### Description

Moves the file *cFromPath* to the new location *cToPath*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

*cFromPath* is the pathname of the file to be moved. *cToPath* is the pathname of the destination folder into which the file will be moved (if you include a file name in *cToPath* the function will fail under macOS); the file to be moved must not already exist in the destination folder. The function returns an error code, or zero if successful: see the FileOps function error codes.

To copy a file, rather than move it, use $copyfile().

Note that **$movefile()** cannot move a file across volumes.
Use $copyfile() and $deletefile() instead.

### Example

```
Do FileOps.$movefile(
'c:\omnis\examples\extcomp\extcomp.lbs','c:\omnis\startup\extcomp.lbs') Returns
lError
;  moves the library 'extcomp.lbs' to the Omnis\Startup folder
```

# FileOps.$parentdir()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$parentdir**(*cPath*)

### Description

Returns the pathname of the directory containing the file or directory identified by cPath, i.e. its parent directory. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

# FileOps.$putfilename()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$putfilename**(&cPath[,cPrompt,cFilter,cInitialDirectory,iAppflags])

### Description

Opens the standard Save file dialog.

You can supply a default value for the file name in *cPath*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

You can specify the dialog title in *cPrompt*.

You can use *cFilter* on Windows and Linux in a similar way to the *cFilter* parameter of $getfilename().

You can also specify the initial directory for the Save dialog in *cInitialDirectory*.

The *iAppflags* parameter only applies when running on macOS. It is optional; if specified, it must be a combination of the following constants:

| | |
|---|---|
| kFileOpsSelectApps | Allows applications to be selectable within the dialog |
| kFileOpsOpenApps | Allows the dialog to browse the content of applications |

Note that kFileOpsOpenApps automatically implies kFileOpsSelectApps, although it is valid to specify both flags (kFileOpsSelectApps + kFileOpsOpenApps).

The name and full path of the file entered by the user is returned in *cPath*. Note that the file is not saved: you must write the code to output the file. **$putfilename()** returns true if the user selected a file and pressed OK. Otherwise, it returns false, meaning that the user pressed Cancel.

### Example

```
Calculate lPath as 'Default.rep'
;  set the default name


Do FileOps.$putfilename(lPath,'Save print file','*.rep','c:\omnis\examples')
Returns lError
;  opens the Save dialog with the title 'Save print file' and returns the name and
full path of file entered by the user
```

# FileOps.$readentirefile()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

FileOps.$readentirefile(*cPath,&xVariable*)

### Description

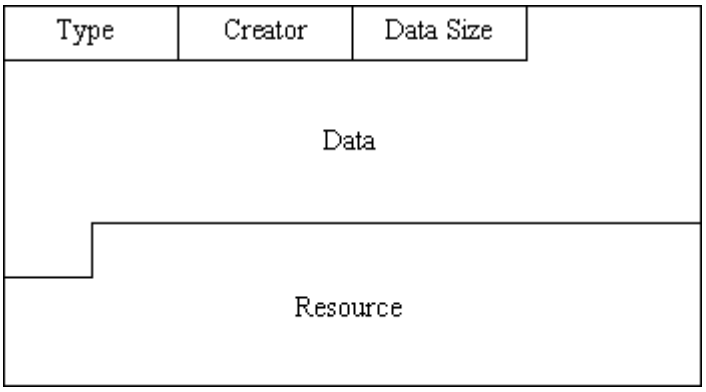
Reads the entire file identified by *cPath* into binary *xVariable*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

When called on macOS, the data read into *xVariable* includes the macOS resource fork and file type information. On return, the value in *xVariable* has the following format:

1. 12 byte header containing the Type (4 bytes), Creator (4 bytes), and Data fork size (4 bytes).
2. Data fork information.
3. Resource fork information.

The size of the data fork determines where the resource fork data is stored, as shown below. Under Windows and Linux, the Type defaults to ‘TEXT’ the Creator to ‘mdos’ and the resource fork is empty.

The function returns an error code, or zero if successful: see the FileOps function error codes.




### Example

```
Do FileOps.$readentirefile('/omnis/myfile',lBinary) Returns lError
;  reads the file into the binary variable
```

## FileOps.$rename()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$rename**(*cOldname,cNewname*)

### Description

Renames the file or folder named *cOldname* to *cNewname*.

The function returns an error code, or zero if successful: see the FileOps function error codes.

### Example

```
Do FileOps.$rename('c:\omnis\libs','c:\omnis\examples') Returns lError
;  renames the 'libs' folder to 'examples'


Do FileOps.$changeworkingdir('c:\omnis\datafile\odbc') Returns lError
Do FileOps.$rename('odbc.txt','readme.txt') Returns lError
;  switches to the 'c:\omnis\datafile\odbc' folder and renames 'odbc.txt' to
'readme.txt'
```

## FileOps.$selectdirectory()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$selectdirectory**(&cPath[,cPrompt,cInitialDirectory,iAppflags])

### Description

Opens the Select folder dialog.

You can specify the dialog title in *cPrompt*, and the initial directory in *cInitialDirectory*.

The *iAppflags* parameter only applies when running on macOS. It is optional; if specified, it must be a combination of the following constants:

| | |
|---|---|
| kFileOpsSelectApps | Allows applications to be selectable within the dialog |
| kFileOpsOpenApps | Allows the dialog to browse the content of applications |

Note that kFileOpsOpenApps automatically implies kFileOpsSelectApps, although it is valid to specify both flags (kFileOpsSelectApps + kFileOpsOpenApps).

The name and full path of the folder selected by the user is returned in *cPath*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier. The function returns true if the user selected a directory and pressed OK. Otherwise, it returns false, meaning that the user pressed Cancel.

### Example

```
Do FileOps.$changeworkingdir(sys(115)) Returns lError
Do FileOps.$getworkingdir() Returns lWorkDir
Do FileOps.$selectdirectory(lPath,'Select a folder',lWorkDir) Returns lError
;  switches to the 'c:\omnis' folder and prompts the user to select a folder
```

# FileOps.$setfileinfo()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$setfileinfo**(cPath,iInformationFlag,vInfoValue,...)

### Description

Sets file information for the file named *cPath*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

You can use **$setfileinfo()** to change the read-only and hidden status of a file. You pass the relevant kFileOpsInfo... constant in *iInfoFlag*, and the new value in *vInfoSetting*. If desired, you can then pass the other constant and its new value in the next two parameters. The function returns an error code, or zero if successful: see the FileOps function error codes.

### Example

```
Do
FileOps.$setfileinfo('c:\omnis\meths.txt',kFileOpsInfoReadOnly,kTrue,kFileOpsInfoH
idden,kFalse) Returns lError
;  sets the file 'meths.txt' to be read-only and not hidden
```

# FileOps.$setunixpermissions()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | Linux, macOS |

### Syntax

FileOps.$setunixpermissions(*cPath,cPermissions*)

### Description

Sets the Unix permissions for the file identified by *cPath.* Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

The parameter *cPermissions* has the same syntax as the permissions string returned by $getunixpermissions().

# FileOps.$splitpathname()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$splitpathname**(*cPath,&cDriveName,&cDirectoryName,&cFileName,&cFileExtension*)

### Description

Splits the path *cPath* into *cDriveName*, *cDirectoryName*, *cFileName*, and *cFileExtension*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

The function returns zero if successful, or an error code: see the FileOps function error codes.

### Example

```
Do sys(10) Returns lPath
;  returns the name and path of current library


Do FileOps.$splitpathname(lPath,lDrive,lDirName,lFilename,lFileExtn) Returns
lError
;  under Windows, when lPath = 'C:\OMNIS\EXAMPLES\EXTCOMP.LBS'
;  lDrive     returns     C:
;  lDirName   returns     \OMNIS\EXAMPLES\
;  lFileName  returns     EXTCOMP
;  lFileExtn  returns     .LBS


Do FileOps.$splitpathname('c:\omnis',lDrive,lDirName,lFilename,lFileExtn) Returns
lError
;  under Windows
;  lDrive     returns     C:
;  lDirName   returns     \
;  lFileName  returns     OMNIS
;  lFileExtn  returns     (empty)


Do FileOps.$splitpathname(
'HD:Omnis:Examples:Extcomp.lbs',lDrive,lDirName,lFilename,lFileExtn) Returns
lError
;  under macOS
;  lDrive     returns     HD
;  lDirName   returns     :Omnis:Examples:
;  lFileName  returns     Extcomp
;  lFileExtn  returns     .lbs


Do
FileOps.$splitpathname('/omnis/examples/extcomp.lbs',lDrive,lDirName,lFilename,lFi
leExtn) Returns lError
;  under Linux
```

```
; lDrive     returns     (empty)
; lDirName   returns     /omnis/examples
; lFileName  returns     extcomp
; lFileExtn  returns     .lbs
```

# FileOps.$writeentirefile()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FileOps | NO | All |

### Syntax

**FileOps.$writeentirefile**(*cPath,xVariable*)

### Description

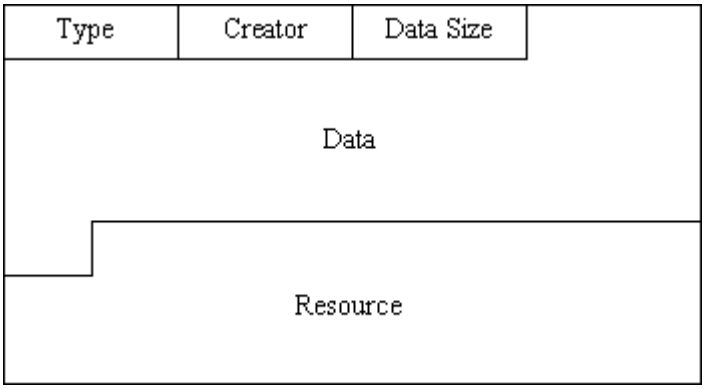
Creates and writes the entire file identified by *cPath*, using the data supplied in binary *xVariable*. Pathnames can be over 255 characters, which was the limit in Studio 8.0.1 or earlier.

If the file already exists, **$writeentirefile()** replaces it. The value in *xVariable* must have the following format:

1. 12 byte header containing the Type (4 bytes), Creator (4 bytes), and Data fork size (4 bytes).
2. Data fork information.
3. Resource fork information.

The size of the data fork determines where the resource fork data is stored, as shown below. Under Windows and Unix, the resource fork is not written.

The function returns an error code, or zero if successful: see the FileOps function error codes.




### Example

```
Do FileOps.$writeentirefile('/omnis/myfile:',lBinary) Returns lError
; writes the contents of the binary variable to the file
```

# flag()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**flag**()

### Description

Returns #F.

## fld()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Field | NO | All |

### Syntax

**fld**(string1[,string2],...)

### Description

Returns the value of the field name given by concatenating or combining one or more *string* values.

### Example

```
Calculate RATE1 as 10
Calculate RATE2 as 15


Calculate lFieldValue as fld('RATE','1')
;  returns 10


Calculate lFieldValue as fld('RATE','2')
;  returns 15
```

## fmtdatetime()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**fmtdatetime**(*[newformat]*)

### Description

Either sets #FDT to *newformat* and returns the previous value of #FDT, or if no parameter is supplied returns the current value of #FDT.

## fmtdp()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Number | NO | All |

### Syntax

**fmtdp**([newdps])

### Description

Either sets #FDP to *newdps* and returns the previous value, or if no parameter is supplied returns the current value of #FDP.

## fmtshortdate()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**fmtshortdate**(*[newformat]*)

### Description

Either sets #FD to *newformat* and returns the previous value of #FD, or if no parameter is supplied returns the current value of #FD.

## fmtshorttime()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**fmtshorttime**(*[newformat]*)

### Description

Either sets #FT to *newformat* and returns the previous value of #FT, or if no parameter is supplied returns the current value of #FT.

## fontlist()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Font handling | NO | Windows, Linux |

### Syntax

**fontlist**(*listname*)

### Description

Returns a list of fonts currently installed in your system, including the font name and type.

Note that fontlist() is deprecated. Use FontOps.$replistfonts() or FontOps.$winlistfonts() instead.

The *listname* parameter is any list field or variable. A return value of 0 indicates no fonts found or some error, otherwise 1 is returned indicating a list was built. You should define the following columns in your list field or variable.

| Column 1 | Col 2 (Optional) | Column 3 (Optional) |
|---|---|---|
| String var to hold name of the font | Numeric var to hold value (0..7) for type of font | String var to hold a name for the value in col 2. This will be a combination of "Raster", "Vector", "TrueType" together with "Fixed" or "Proportional" |

### Example

```
Set current list lFontList
Define list {lFontName,lFontType,lFontDesc}
If fontlist(lFontList)<>0
  Redraw lists
End If
```

# FontOps.$replistfonts()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FontOps | NO | All |

### Syntax

**FontOps.$replistfonts**(*list*)

### Description

Populates the specified *list* with the report fonts installed on your system, and indicates whether or not they are truetype.

The list must contain two columns, the first character type, the second boolean. The function returns zero for success, less than zero for failure. Having built the list you can search and manipulate the list using the standard list functions and methods.

### Example

```
Do lFontList.$define(lFont,lTrueType)
Do FontOps.$replistfonts(lFontList)
;  returns a list of report fonts


Do lFontList.$linecount() Returns lNumberOfFonts
;  returns the total number of report fonts


Do tot(lFontList,lTrueType) Returns lNumberOfFonts
;  returns the number of truetype fonts


Do totc(lFontList,lTrueType=kFalse) Returns lNumberOfFonts
;  returns the number of non-truetype fonts
```

# FontOps.$reptextheight()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FontOps | NO | All |

### Syntax

**FontOps.$reptextheight**(font-name|font-table-index,point-size[,font-style,extra-points])

### Description

Returns the height in inches/cms (depending on $usecms preferences) of the specified report font. The units of the returned value are determined by $root.$prefs.$usecms.

### Example

```
Do FontOps.$reptextheight('Times',144) Returns lHeight
```

```
;  returns 2.24 inches / 5.69 cms


Do FontOps.$reptextheight('Times',144,,24) Returns lHeight
;  returns 2.57 inches / 6.54 cms
```

# FontOps.$reptextwidth()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FontOps | NO | All |

### Syntax

**FontOps.$reptextwidth**(string,font-name|font-table-index,point-size[,font-style])

### Description

Returns the width in inches/cms (depending on $usecms preference) required to draw the *string* using the specified report font. The units of the returned value are determined by $root.$prefs.$usecms.

### Example

```
Do FontOps.$reptextwidth('Hello WWW','Arial',24) Returns lWidth
;  returns 1.83 inches / 4.66 cms


Do FontOps.$reptextwidth('Hello WWW','Arial',24,kBold+kItalic) Returns lWidth
;  returns 1.85 inches / 4.71 cms


Do FontOps.$reptextwidth('Hello WWW',2,72,kBold+kItalic) Returns lWidth
;  returns 5.40 inches / 13.81 cms
;  note that Courier font is at position 2 in #WIRFONTS
```

# FontOps.$winlistfonts()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FontOps | NO | All |

### Syntax

**FontOps.$winlistfonts**(*list*)

### Description

Populates the *list* with the window fonts installed on your system, and indicates whether or not they are truetype.

The list must contain two columns, the first character type, the second boolean. The function returns zero for success, less than zero for failure. Having built the list you can search and manipulate the list using the standard list functions and methods.

### Example

```
Do lFontList.$define(lFont,lTrueType)
Do FontOps.$winlistfonts(lFontList)
;  returns a list of windows fonts


Do lst(lFontList,1,lFont) Returns lFirstFont
```

```
;  returns the first font in the list


Do lst(lFontList,lFontList.$linecount,lFont) Returns lLastFont
;  returns the last font in the list
```

# FontOps.$wintextheight()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FontOps | NO | All |

### Syntax

**FontOps.$wintextheight**(font-name|font-table-index,point-size[,font-style,extra-points])

### Description

Returns the height in screen units of the specified window font.

You specify the font using either the *font-name* or *font-table-index*. When called with a font table index, **$wintextheight()** uses the window font system table of the current library which can contain up to 15 fonts numbered 1 to 15. You specify the *point-size* of the font, and you can include a *font-style* constant and a number of *extra-points*.

### Example

```
Do FontOps.$wintextheight('Courier',72) Returns lHeight
;  returns 100 under Windows


Do FontOps.$wintextheight('Courier',72,,24) Returns lHeight
;  returns 132 under Windows


Do FontOps.$wintextheight(2,36) Returns lHeight
;  returns 50 under Windows
;  note that Courier font is at position 2 in #WIWFONTS
```

# FontOps.$wintextwidth()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| FontOps | NO | All |

### Syntax

**FontOps.$wintextwidth**(string,font-name|font-table-index,point-size[,font-style])

### Description

Returns the width in screen units required to display the *string* using the specified window font.

You specify the font using either the *font-name* or *font-table-index*. When called with a font table index, **$wintextwidth()** uses the window font system table of the current library which can contain up to 15 fonts numbered 1 to 15. You can include a *font-style* constant, or combination of styles.

### Example

```
Do FontOps.$wintextwidth('Hello WWW','Courier',36) Returns lWidth
;  returns 243
```

```
Do FontOps.$wintextwidth('Hello WWW','Courier',36,kBold+kItalic) Returns lWidth
;  returns 252


Do FontOps.$wintextwidth('Hello WWW',5,36) Returns lWidth
;  returns 240
;  note that System font is at position 5 in #WIWFONTS
```

# format()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**format**(format,variable)

### Description

Applies *format* to *variable* and returns the resulting string. *format* must be a Boolean, date, number or text format: the function expects the type of the *format* to correspond to the data type of the *variable*.

# formatchunk()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| RESTful | NO | All |

### Syntax

**formatchunk**(*data*)

### Description

Formats *data* and returns a chunk suitable for sending to the client using chunked transfer encoding. *Data* can be character (which Omnis converts to UTF-8) or binary.

# formathttpdate()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| RESTful | NO | All |

### Syntax

**formathttpdate**(*omnisdate*)

### Description

Formats the Omnis date-time value *omnisdate* (assumed to be in UTC) as an HTTP date header value and returns the resulting string.

# formatserversentevent()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| RESTful | NO | All |

**Syntax**

**formatserversentevent**(fieldname,fielddata[,fieldname,fielddata]...)

**Description**

Formats data and returns a value suitable for sending as an event in text/event-stream content. Parameters can be character (which Omnis converts to UTF-8) or binary (UTF-8).

# getdatetime()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

**Syntax**

**getdatetime**()

**Description**

Returns the current system date and time.

# getenv()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

**Syntax**

**getenv**(*name*)

**Description**

Returns the value of the Omnis process environment variable with the specified *name*.

**Example**

```
;  Get the executable search PATH environment variable
Calculate lVar1 as getenv("PATH")
```

# getfye()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

**Syntax**

**getfye**()

**Description**

Returns the current date of the fiscal year end (note no argument).

**Example**

```
Calculate lDate as setfye('DEC 31')
```

```
;  set the fiscal year end to December 31


Calculate lDate as getfye()
;  returns December 31st set by setfye()
```

# getseed()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Random | NO | All |

### Syntax

**getseed**()

### Description

Returns the current content of the seed as an integer number (note no argument).

### Example

```
Calculate lResult as getseed()
```

# getticks()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | YES | All |

### Syntax

**getticks**()

### Description

Returns the number of ticks elapsed since system boot (for a JavaScript client executed method, since midnight on 1 Nov 2011). A tick is 1/60th of a second. The value can overflow and restart at zero.

# getws()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

getws()

### Description

Returns the day of week which is set as the beginning of the week (note no argument).

The day of the week is returned as one of the datepart constants: kSunday, kMonday, kTuesday, kWednesday, kThursday, kFriday, kSaturday.

### Example

```
Calculate lDate as setws(kMonday)
;  set the beginning of the week to Monday


Calculate lDate as getws()
```

```
;  returns 13, the value of the constant kMonday
```

# iconurl()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

**Syntax**

**iconurl**(*iconid*)

**Description**

Returns a URL string suitable for use with certain JavaScript client controls.

# int()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Number | YES | All |

**Syntax**

**int**(number)

**Description**

Returns the integer part of a *number*; it does not round to the nearest integer.

**Example**

```
Calculate lResult as int(23.1056)
;  returns 23


Calculate lResult as int('-2.66')
;  returns -2


Calculate lResult as abs(int(-1.999))
;  returns 1
```

# isclear()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

**Syntax**

**isclear**(expression)

**Description**

Returns true if the *expression* has value NULL, zero (for numeric data types only) or empty.

# isfontinstalled()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Font handling | NO | Windows, Linux |

**Syntax**

**isfontinstalled**(*fontname*)

**Description**

Returns a true or false value indicating whether the named font has been fully installed into your system.

The *fontname* argument can be a string literal, character field or variable with a maximum length of 255.

**Example**

```
If not(isfontinstalled('O7Font'))
  OK message  {Cannot run library without 'O7Font'}
End If
```

# isleopard()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

**Syntax**

**isleopard**()

**Description**

Returns true if the current operating system is Mac OS X Leopard (10.5) or later.

# islion()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

**Syntax**

**islion**()

**Description**

Returns true if the current operating system is Mac OS X Lion (10.7) or later.

# ismountainlion()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

**Syntax**

**ismountainlion**()

### Description

Returns true if the current operating system is Mac OS X Mountain Lion (10.8) or later.

## isnull()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**isnull**(expression)

### Description

Returns true if the *expression* has value NULL.

Also returns true if *fieldname*, a field in the current record, is null. A null value is one where no value has been entered and the field definition is **Can be null** without **Insert as Empty.**

### Example

```
Calculate lVar1 as #NULL
Calculate lBoolean as isnull(lVar1)
;  returns true because lVar1 is null
```

## isnumber()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**isnumber**(string[,decimal-char][,thousands-char])

### Description

Returns kTrue if the specified *string* can be evaluated as a number; kFalse otherwise.

The optional parameters can be used to define the decimal and thousand separator. If the optional parameters are not specified the default separators are used, a '.' for the decimal and a ',' for the thousand.

### Example

```
Calculate lStatus as isnumber(lString)
;  lStatus is kTrue if lString can be evaluated as a number
```

## isoweek()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**isoweek**(*date*)

### Description

Returns the ISO 8601 standard week number for the week containing the specified *date*.

### Example

```
Calculate lDate as isoweek(#D)
;  returns the current ISO week number
```

# issnowleopard()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**issnowleopard**()

### Description

Returns true if the current operating system is Mac OS X Snow Leopard (10.6) or later.

# isunicode()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Unicode | YES | All |

### Syntax

**isunicode**()

### Description

Always returns true because Omnis Studio 5.0 and later always supports Unicode.

# isvista()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**isvista**([themed=kfalse])

### Description

For themed = kFalse, returns true if the current operating system is Windows Vista or later; for themed = kTrue, returns true if the current operating system is Windows Vista or later with a themed appearance.

# iswindows7()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**iswindows7**([themed=kfalse])

### Description

For themed = kFalse, returns true if the current operating system is Windows 7 or later; for themed = kTrue, returns true if the current operating system is Windows 7 or later with a themed appearance.

## iswindows8()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**iswindows8**([themed=kfalse])

### Description

For themed = kFalse, returns true if the current operating system is Windows 8 or later; for themed = kTrue, returns true if the current operating system is Windows 8 or later with a themed appearance.

## iswindows10()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**iswindows10**([themed=kfalse])

### Description

For themed = kFalse, returns true if the current operating system is Windows 10 or later; for themed = kTrue, returns true if the current operating system is Windows 10 or later with a themed appearance.

## iswindows81()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**iswindows81**([themed=kfalse])

### Description

For themed = kFalse, returns true if the current operating system is Windows 8.1 or later; for themed = kTrue, returns true if the current operating system is Windows 8.1 or later with a themed appearance.

## iswindowsserver()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**iswindowsserver**()

### Description

Returns true if the current operating system is a Windows Server operating system.

## JavaObjs Library.$addclass()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| JavaObjs Library | NO | All |

### Syntax

**JavaObjs Library.$addclass**(group,classfilename,[classpath])

### Description

Adds a class to the specified group constant.

## JavaObjs Library.$resetclasscache()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| JavaObjs Library | NO | All |

### Syntax

**JavaObjs Library.$resetclasscache**()

### Description

Deletes the Java objects class cache file, allowing the Java objects library to rebuild it the next time Omnis starts up; any classes added with $addclass will be lost from the cache.

## jst()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**jst**(string1,number1[,string2,number2]...)

### Description

Returns a string containing the specified *string* left or right justified with sufficient spaces added to make a total length specified by *number*.

The **jst()** function also includes concatenation. If *number* is negative the resulting *string* is right justified, if the *number* is positive the *string* is left justified; *number* must be in the range 1 to 999.

```
jst('This is left justified',30)
; gives
|This is left justified |


jst('This is right justified',-30)
; gives
| This is right justified|
```

When you define the columns for a list, **jst()** lets you fix the column width and using a non-proportional font the list columns will line up properly. For example, the calculation for a list containing the fields CODE and COMPANY could be

```
jst(CODE,7,COMPANY,25)
```

The **jst()** function also includes concatenation, for example:

```
jst(p1,p2,p3,p4,p5,p6,...)
; is the same as
con(jst(p1,p2),jst(p3,p4),jst(p5,p6),...)
```

However it has a limit of 100 parameters, but you can exceed this limit by using *Calculate CVAR1 as jst(CVAR2,CVAR3)* where CVAR2 has 99 items and CVAR3 has 99 items, and so on.

### Formatting Strings Using jst()

The **jst()** function can take a string for the second argument instead of a number, that is

**jst**(*string1*,*string1*[,*string2*,*string2*]...)

This form of **jst()** formats the first *string1* argument in a way controlled by the second *string2* argument. The second argument consists of a series of formatting options which you can use separately or together. Each option is represented by one or more characters. The order of the various formatting options is not important but the case is.

| | |
|---|---|
| ^n | (caret) causes the data to be centered in the field n characters wide.<br>`jst('abc','^5')  ;; returns ' abc '`<br>`jst(FIELD,'^25')  ;; as a list calculation will center the FIELD values in a column 25 characters wide` |
| £ | places a £ sign in front of the data. The data must be a number or an integer.<br>`jst(TOTAL,'£')  ;; returns '£12.12' if TOTAL = 12.12` |
| $ | places a $ sign in front of the data. The data must be a number or an integer.<br>`jst(TOTAL,'$')  ;; returns ' $12.12' if TOTAL = 12.12` |
| < | left justification, overriding the default set up in a report class. This is used by the Ad hoc report generator to control the justification of fields. |
| Pc | causes the part of the field not filled by the data to be filled by character c.<br>`jst('abc','-5P*')  ;; returns '**abc'` |
| X | causes the data to be truncated if its length exceeds the field length. The default is not to truncate.<br>`jst('abcdef','4')  ;; returns 'abcdef'`<br>`jst('abcdef','4X')  ;; returns 'abcd'` |
| U | causes the data to be converted to upper case.<br>`jst('this IS it','U') ;; returns 'THIS IS IT'` |
| L | causes the data to be converted to lower case.<br>`jst('THIS is IT','L') ;; returns 'this is it'` |
| C | causes the data to be capitalized.<br>`jst('this is it','C') ;; returns 'This Is It'`<br>`jst('THIS IS IT','C') ;; returns 'This Is It'`<br>`jst('this IS IT','C') ;; returns 'This Is It'` |
| Nnn | causes the data to be treated as a fixed decimal number with nn decimal places. If nn is not specified, a suitable number of decimal places is used. |

| | |
|---|---|
| | jst(0.235,'N') ;; returns '0.235'<br>jst(0.235,'N2') ;; returns '0.24' |
| Fnn | causes the data to be treated as a floating decimal number with format specified by nn. The nn argument can be a positive or negative number and has the same meaning as described for the #FDP variable. If nn is not specified, it defaults to the current value of #FDP.<br>jst(12.35,'-10F9') ;; returns ' 12.35'<br>jst(12.35,'-10F-9') ;; returns '1.23500000e+001'<br>jst(12.35,'-10F-3U') ;; returns '1.24E+001' |
| D | causes the data to be treated as a date. The default formatting string is #FD, but you can specify a formatting string as described later. Note - JavaScript client-executed methods do not support the D option.<br>jst('26/11/97','DC') ;; returns '26 Nov 97' if #FD = 'D m Y' |
| DT | causes the data to be treated as a long date and time. The default formatting string is #FDT but you can specify a formatting string using the : (colon) argument as described below. Note - JavaScript client-executed methods do not support the DT option.<br>jst(#D,'DT') ;; returns '26 Nov 97 15:30' if #FDT is 'D m Y H:N' |
| T | causes the data to be treated as a time using the formatting string *#FT*. You can include a format string using the : (colon) argument as described below. Note - JavaScript client-executed methods do not support the T option.<br>jst('0620','T') ;; returns '06:20' if #FT = 'H:N' |
| A | displays a null value as 'NULL'.<br>jst(Field1,'A') ;; returns 'NULL' when Field1 is null |
| B | causes the data to be treated as Boolean.<br>jst(1,'LB') ;; returns 'yes' |
| E | applies to numbers only and turns on the 'Zero shown empty' attribute.<br>jst(0,'N2') ;; returns '0.00'<br>jst(0,'N2E') ;; returns '' |
| , | (comma) applies to numbers only and turns on the 'Shown like 1,234' attribute.<br>jst(1234,'N2') ;; returns '1234.00'<br>jst(1234,'N2,') ;; returns '1,234.00' |
| ( | (open bracket) applies to numbers only and turns on the 'Shown like (1234)' attribute.<br>jst(-1234,'N2') ;; returns '-1234.00'<br>jst(-1234,'N2(') ;; returns '(1234.00)'<br>jst(1234,'N2(') ;; returns '1234.00 ' |
| ) | (close bracket) applies to numbers only and turns on the 'Shown like 1234-' attribute.<br>jst(-1234,'N2)') ;; returns '1234.00-'<br>jst(1234,'N2)') ;; returns '1234.00 ' |
| + | (plus sign) applies to numbers only and causes positive numbers to be shown with a "+" sign.<br>jst(1234,'N2+') ;; returns '+1234.00'<br>jst(1234,'N2)+') ;; returns '1234.00+' |

| | |
|---|---|
| : | (colon) characters following a colon are interpreted as a formatting string. This must be the last option since all characters following it become part of the formatting string. The meaning of the formatting string depends on the type of the data. |

The formatting string has a similar format to #FDT if the data is a date/time value, using the following characters:

| | | | |
|---|---|---|---|
| Y | Year (99) | H | Hour (0..23) |
| y | Year (1999) | h | Hour (1..12) |
| C | Century (19) | N | Minutes |
| M | Month (06) | S | Seconds |
| m | Month (JUN) | s | Hundredths |
| n | Month (June) | A | AM/PM |
| D | Day (12) | V | Short day of week (Fri) |
| d | Day (12th) | E | Day of year (1–366) |
| W | Day of week (5) | G | Week of year (1–52) |
| w | Day of week (Friday) | F | Week of month (1–6) |

For example:

```
jst(#D,'D:w, d n CY')
; returns 'Saturday, 29th November 1997'
cap(jst(#D,'D:V d n Y'))
; returns 'Sat 29th Nov 97'
```

The formatting string has a similar format to #FT if the data is a time value. #FT is used as the formatting string if a formatting string is not specified for a time.

```
jst(#T,'T:H-N') ;; returns '14-07'
```

If the data is neither a date nor a time value, and if the formatting string contains an X, the data value is inserted at the position of the X to produce the data value.

```
jst(0,'BC:The answer is X!')
; returns 'The answer is No!'
```

The formatting string is concatenated to the left of the data value if the formatting string does *not* contain an X. The data value is left unchanged if a formatting string is not specified.

```
jst(12,'-7N2:$') ;; returns ' $12.00'
jst(12,'-7N2:£') ;; returns ' £12.00'
jst(12,'-8N2:DM') ;; returns ' DM12.00'
```

# lday()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

**Syntax**

**lday**(datepart,date)

### Description

Returns the date of the last day of the year, month, week or quarter in which the specified date falls. datepart can be kYear, kQuarter, kMonth, or kWeek.

The period is specified using one of the following datepart constants: kYear, kQuarter, kMonth, kWeek.

### Example

```
Calculate lDate as lday(kWeek,#D)
;  returns May 11 2003, assume #D is May 8, 2003


Calculate lDate as lday(kMonth,#D)
;  returns May 31 2003, assume #D is May 8, 2003
```

## left()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**left**(string,n)

### Description

Returns the substring comprising the first *n* characters of the *string*.

### Example

```
Calculate lResult as left('Raining',4)
;  returns 'Rain'
```

## len()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**len**(string)

### Description

Returns the length of a *string* (number of characters).

### Example

```
Calculate lResult as len('Hello there!')
;  returns 12


Calculate lResult as len(abs(-10.25))
;  returns 5 as it is the same as len(10.25)


Calculate lResult as len('Omnis')+20
;  returns 25
```

# list()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | YES | All |

### Syntax

**list**(row1[,row2]...)

### Description

Returns a list from a number of *row* variables of identical structure, that is, the data type of each column in each row variable should match.

In the following example, one row in the list is created for each row variable passed. If the type of a particular column in the list does not match the type of a row variable column, **list()** tries to convert the row variable column to that of the list column, from number to string. If the column type cannot be converted the column is left blank.

### Example

```
Set current list lList
Define list {lCol1,lCol2,lCol3}
Calculate lList as list(lRow1,lRow2,lRow3)
;  returns a list from row variables, lRow1, lRow2 and lRow3
```

# listenv()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**listenv**()

### Description

Returns a 2 column list of the Omnis process environment variables. Column 1 contains the variable name, and column 2 the variable value. The list is sorted by the variable name column (case insensitive).

### Example

```
;  Get the list of environment variables
;  There is no need to define the list first; the returned list has 2 character columns, name and value
Calculate lList as listenv()
```

# ln()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Logarithmic | YES | All |

### Syntax

**ln**(number)

### Description

Returns the log to base e (the natural logarithm) of a *number*; or -1e100 if *number* <= 0.

### Example

```
Calculate lResult as ln(exp(0.5))
;  returns 0.5
```

# locale()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Unicode | YES | All |

### Syntax

**locale**([locfile=kfalse])

### Description

Returns either the locale string for the user locale in which the program is running, or in the fat client if *locfile* is kTrue, the current localisation data file locale.

# loctoutc()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**loctoutc**(*datetime*)

### Description

Converts the *datetime* (or time) from the local timezone to UTC (Coordinated Universal Time), and returns the result.

# log()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Logarithmic | YES | All |

### Syntax

**log**(number)

### Description

Returns the log to base 10 of a *number*; or -1e100 if *number* <= 0.

### Example

```
Calculate lResult as log(100)
;  returns 2


Calculate lResult as log(0.001)
;  returns -3
```

# lookup()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Lookup | NO | All |

### Syntax

**lookup**([refname,]searchvalue[,fieldnumber])

### Description

Returns a field value from another data file *refname* (opened as a lookup file) using a *searchvalue*.

The *fieldnumber* argument specifies the particular field in the lookup file to be returned by the function. Each lookup file is opened using the Open lookup file command at which time a reference label is assigned to that lookup.

If you omit the third argument, the value of the second field is returned by default. If one argument is given, the default lookup file is used, that is, the lookup file which was opened without a reference label, or the first lookup file opened if all have labels.

If no exact match is found, an empty value is returned. All field types are returned, including pictures and long text.

### Example

```
Open lookup file {City/Cities.df1/FCITY/1}
;  Reference name is City, file class FCITY


OK message  {CNAME is [lookup('City','FOS',2)]}
;  Uses first field in FCITY as the index
```

# low()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**low**(string)

### Description

Returns the lower case representation of a *string*. Any non-alphabetic characters in the strings are unaffected by low().

### Example

```
Calculate lString as low('DAVID')
;  returns 'david'


Calculate lString as low('OrAcLe8')
;  returns 'oracle8'


Calculate lString as low('1017')
;  returns '1017’


Calculate lString as mid(low('PERIPHERAL'),3,3)
```

```
;  returns 'rip'
```

# lst()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | NO | All |

### Syntax

**lst**([[listname,]linenumber,]fieldname)

### Description

Returns the value of *fieldname* from a line specified by *linenumber* in a list specified by *listname*. For client-executed methods *listname* must be specified.

The *fieldname* argument must be a field stored in the list, not a constant or expression. If *listname* is not specified the current list is used. If only the *fieldname* argument is specified the current line of the current list is used.

### Example

```
Calculate lResult as lst(lList,23,lCol1)
;  returns lCol1 field value stored at line 23 of list lList


Calculate lResult as lst(23,lCol1)
;  returns lCol1 field value stored in line 23 of the current list


Calculate lResult as lst(lCol1)
;  returns lCol1 field value stored at current line of current list


Calculate lResult as lst(lList,0,#LM)
;  returns the maximum number of lines in list lMyList
```

# max()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Lookup | YES | All |

### Syntax

**max**(value1[,value2]...)

### Description

Returns the maximum value from a list of values. The values should all be numbers when numeric comparison is used or all strings when string comparison is used.

### Example

```
Calculate lResult as max(3,6,2,7)
;  returns 7


Calculate lResult as max('dagger','dog','dig')
;  returns 'dog'
```

# maxc()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | NO | All |

### Syntax

**maxc**(listname,column[,ignore-nulls])

### Description

Returns the maximum value for a list column specified by *listname* and *column*. maxc() can only be used with columns defined using variables so it cannot be used with lists defined from a SQL class.

If you set *ignore_nulls* to 1, null values are ignored and not counted. If you omit this parameter or it evaluates to zero, nulls are treated as zero values and are counted.

### Example

```
Calculate lMax as maxc(lInventory,lQuantity)
;  returns the maximum value in the lQuantity column of lInventory
```

# mid()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**mid**(string,position,length)

### Description

Returns a substring of a specified *length*, starting at a specified *position*, from a larger *string*.

If *position* is less than 1, or greater than the length of the *string*, the result is an empty string. If *length* is greater than the maximum length of any substring of *string* starting at *position*, the returned substring will be the remainder of *string* starting at position. If you omit *length*, the remainder of the *string* from *position* is returned.

### Example

```
Calculate lString as mid('Information',6,3)
;  returns 'mat'


Calculate lString as int(mid(12.45,2,3))
;  returns 2 as it is the same as int('2.4')


Calculate lString as mid('interaction',6,24)
;  returns 'action'
```

# min()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Lookup | YES | All |

### Syntax

**min**(value1[,value2]...)

### Description

Returns the minimum value from a list of values. The values should all be numbers when numeric comparison is used or all strings when string comparison is used.

### Example

```
Calculate lResult as min(3,6,2,7)
;  returns 2


Calculate lResult as min('cat','dog','apple')
;  returns 'apple'
```

## minc()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | NO | All |

### Syntax

**minc**(listname,column[,ignore-nulls])

### Description

Returns the minimum value for a list column specified by *listname* and *column*. minc() can only be used with columns defined using variables so it cannot be used with lists defined from a SQL class.

If you set *ignore_nulls* to 1, null values are ignored and not counted. If you omit this parameter or it evaluates to zero, nulls are treated as zero values and are counted.

### Example

```
Calculate lMin as minc(lInventory,lQuantity)
;  returns the minimum value in the lQuantity column of lInventory
```

## mod()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Number | YES | All |

### Syntax

**mod**(number1,number2)

### Description

Returns the remainder of a number division, that is, when *number1* is divided by *number2* to produce a remainder; it is a true modulus function.

### Example

```
Calculate lResult as mod(6,4)
;  returns 2


Calculate lResult as mod(4,6)
;  returns 4
```

```
Calculate lResult as mod(-5,-2)
;  returns -1
```

# mousedn()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Mouse | NO | All |

### Syntax

**mousedn**()

### Description

Returns true if the mouse button is held down, otherwise returns false (note no argument). This function returns a Boolean value describing the state of mouse button (the left-hand mouse button under Windows).

# mouseover()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Mouse | NO | All |

### Syntax

**mouseover**(*constant*)

### Description

Returns information about the mouse position defined by a predefined *constant* at the instant the function is evaluated.

The function only works in an "open" user-defined window (not reports or searches). Moreover, it returns references only for fields and not background objects (text and graphic objects).

The mouse position is returned in a variety of ways depending on the constant you use. You can use the following constants:

| | |
|---|---|
| kMItemref | returns a reference to the object under the mouse. The window instance itself can be returned as item 0 of the window. |
| kMCharpos | returns the nth character in an edit field. |
| kMLine | returns the line number for a list. |
| kMPLine | returns the line of the parent list the mouse is over. |
| kMHorz | returns the horizontal position of the mouse relative to the topmost open user-defined window; if no user-defined window is open, returns the horizontal position of the mouse relative to the Omnis application window |
| kMVert | returns the vertical position of the mouse relative to the topmost open user-defined window; if no user-defined window is open, returns the relative position to the Omnis application window |

# mouseup()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Mouse | NO | All |

### Syntax

**mouseup**()

### Description

Returns true if the mouse button is released after having been pressed, otherwise returns false (note no argument).

# msgcancelled()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**msgcancelled**()

### Description

Returns true if the user Cancel button is pressed on a message box.

For example, you can use this to distinguish between No and Cancel on a Yes/No message which both clear the flag.

### Example

```
Yes/No message  (Cancel button) {Do you want to proceed?}
If flag false
  If not(msgcancelled())
    ;  user chose No
  End If
Else
  ;  user chose Yes
End If
```

# nam()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Field | NO | All |

### Syntax

**nam**(fieldname[,doitems=ktrue])

### Description

Returns the name of a field as a string; *fieldname* must be a field name or variable, not a constant or expression. If *doitems* is true, nam() follows item references.

### Example

```
Calculate lFieldName as nam(CCODE)
;  returns the string 'CCODE'
```

```
Calculate lFieldName as nam(#SUBFLD)
;  returns the name of the subtotal field
```

# natcmp()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**natcmp**(value1,value2)

### Description

Returns the result of comparing two values using the national sort ordering. Returns 0 if the strings are equal, 1 if *value1* > *value2*, and -1 if *value1* < *value2*.

Both values are converted to strings before the comparison is made. **natcmp()** uses the same rules for comparing the strings as it does for normal strings, except that it uses the national sort ordering.

### Example

```
Calculate lResult as natcmp(lValue1,lValue2)
;  returns 0 if values are equal
```

# nday()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**nday**(datepart,date)

### Description

Returns the date of the day after the specified *date* when the *datepart* constant is set to kDay.

However, if one of the day of the week constants is used, this function returns the date of that day of the week following the specified *date*.

The datepart constants that you can use are: kDay, kSunday, kMonday, kTuesday, kWednesday, kThursday, kFriday, kSaturday.

### Example

```
Calculate lDate as nday(kDay,#D)
;  returns May 9 2003, assume #D is May 8, 2003


Calculate lDate as nday(kMonday,#D)
;  returns May 12 2003, which is the next Monday after #D, assume #D is May 8,
2003
```

# nfc()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Unicode | NO | All |

### Syntax

**nfc**(string)

### Description

Carries out canonical decomposition followed by canonical composition on the *string* and returns the normalized string.

# nfd()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Unicode | NO | All |

### Syntax

**nfd**(string)

### Description

Carries out canonical decomposition on the *string* and returns the normalized string.

# not()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**not**(expression)

### Description

Returns the logical Not of an *expression*.

All expressions in Omnis have a Boolean (truth) value. Firstly, non-zero numeric values (including negative values) are TRUE, zero values are FALSE. Secondly, string values are TRUE or FALSE depending on their numeric equivalent. String '1' has boolean value 1, therefore *not('1')* is 0. 'Bill' has boolean value 0, 'YES' has numeric value 0.

The numeric value of an expression that evaluates to true is 1, therefore *not(true)* is 0. Similarly, *not(false)* is 1.

You can also use **not()** to make method code more readable.

### Example

```
Calculate lVar1 as not(2501)
;  returns 0


Calculate lVar1 as not('Hello there!')
;  is the same as not(0) which returns 1


Calculate lVar1 as not(31<45)
;  is the same as not(true) which returns false
```

```
Do method ProcessList Returns Done
If not(Done)
  ;  do something
End If
;  can be used to make code more readable
```

# OJSON.$couldbearray()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OJSON | NO | All |

### Syntax

**OJSON.$couldbearray**(vData)

### Description

Returns true if vData (either binary (UTF8/16/32) or character) could possibly be a JSON array because its first character is [.

# OJSON.$couldbeobject()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OJSON | NO | All |

### Syntax

**OJSON.$couldbeobject**(vData)

### Description

Returns true if vData (either binary (UTF8/16/32) or character) could possibly be a JSON object because its first character is {.

# OJSON.$formatjson()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OJSON | NO | All |

### Syntax

OJSON.$formatjson(*vData*)

### Description

Parses the JSON in *vData* (either binary (UTF8/16/32) or character) and returns a formatted representation (or error message if parsing fails) suitable for use in a multi-line entry control.

# OJSON.$jsontolistorrow()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OJSON | NO | All |

### Syntax

**OJSON.$jsontolistorrow**(*vData,[&cErrorText]*)

### Description

Parses the JSON array or object in *vData* (either binary (UTF8/16/32) or character) and returns a row or a list representing the JSON.Returns NULL and cErrorText if an error occurs.

## OJSON.$listorrowtojson()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OJSON | NO | All |

### Syntax

**OJSON.$listorrowtojson**(vListOrRow,[iEncoding=kUniTypeUTF8,&cErrorText])

### Description

Writes the list or row and returns JSON with the specified encoding (UTF8,UTF16BE/LE,UTF32BE/LE or Character).Returns NULL and cErrorText if an error occurs.

## OmnisIcn Library.$getmask()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OmnisIcn Library | NO | All |

### Syntax

**OmnisIcn Library.$getmask**(*iconid*)

### Description

Returns a picture variable containing the mask for the icon identified by *iconid*.

### Example

```
Calculate lPicture as OmnisIcn Library.$getmask(2003)
```

## OmnisIcn Library.$getpict()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OmnisIcn Library | NO | All |

### Syntax

**OmnisIcn Library.$getpict**(*iconid,backgroundcolor*)

### Description

Returns a picture variable containing the icon identified by *iconid*, drawn on the specified *backgroundcolor*.

### Example

```
Calculate lPicture as OmnisIcn Library.$getpict(2003,kRed)
```

# Omnis PDF Device.$encrypt()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Omnis PDF Device | NO | All |

### Syntax

**Omnis PDF Device.$encrypt**( cUserPwdASCII[,cOwnerPwdASCII='',bCanPrint=kTrue,bCanModify=kFalse,bCanCopy=kTrue,bCanAnnotate=kFalse])

### Description

Specifies how PDF documents created by the current task will be encrypted. Empty user password disables all encryption options.

# Omnis PDF Device.$setdocinfo()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Omnis PDF Device | NO | All |

### Syntax

**Omnis PDF Device.$setdocinfo**(cAuthor[,cTitle='',cSubject=''])

### Description

Sets the document information properties for PDF documents created by the current task.

# Omnis PDF Device.$settemp()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Omnis PDF Device | NO | All |

### Syntax

Omnis PDF Device.$settemp(*bTemp[,iTimeout]*)

### Description

*bTemp* false means use $prefs.$reportfile.*bTemp* true means next PDF is output to temp storage and is valid for *iTimeout* minutes; returns id to use with PDF $clientcommands.$settemp can be used for each task instance.

# OWEB.$escapeuritext()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OWEB | NO | All |

### Syntax

OWEB.$escapeuritext(cTextToEscape)

### Description

Returns the escaped form of cTextToEscape. All characters except a-z, A-Z, 0-9, - (hyphen), . (period), _ (underscore), and ~ (tilde) are escaped as %hh. Unicode characters are the escaped form of their UTF-8 representation.

# OWEB.$makeuri()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OWEB | NO | All |

**Syntax**

OWEB.$makeuri(cURIBase,lParameters)

**Description**

Returns the URI formed by adding the parameters in lParameters to cURIBase, escaping parameter names and values as necessary. lParameters is a list: column 1 is the parameter name and column 2 the parameter value.

# OWEB.$makeuuid()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OWEB | NO | All |

**Syntax**

OWEB.$makeuuid([bIncludeMinusSeparators=kTrue])

**Description**

Returns a new UUID as a string. bIncludeMinusSeparators affects the format of the returned string: if true, the returned UUID string is 36 characters long and includes – (hyphen) separators (so it has the standard 8-4-4-4-12 format); if false, the returned UUID string is 32 characters long and has no separators.

# OXML.$base64decode()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OXML | NO | All |

**Syntax**

**OXML.$base64decode**(cData,&cErrorText)

**Description**

Decodes the BASE64 encoded Binary data in cData and returns the result, or NULL and cErrorText if an error occurs.

# OXML.$base64encode()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OXML | NO | All |

**Syntax**

**OXML.$base64encode**(xData,&cErrorText)

### Description

Encodes the data using BASE64 and returns the result as a Binary, or NULL and cErrorText if an error occurs.

## OXML.$formatbinaschar()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OXML | NO | All |

### Syntax

**OXML.$formatbinaschar**(xData[,iBytesPerRow=16,iMaxLength=0])

### Description

Formats at most the first iMaxLength bytes of binary data *xData* into character data suitable for display in a multi-line entry field.

## OXML.$maybexml()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OXML | NO | All |

### Syntax

**OXML.$maybeXML**(*xData*)

### Description

Returns true if the binary data is likely to be XML (it starts with <?xml, in one of the encodings supported by the parser).

## OXML.$md5hexdigest()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OXML | NO | All |

### Syntax

**OXML.$md5hexdigest**(*cData*)

### Description

Generates an MD5 hex digest based on the supplied character data.

## OXML.$striphttpheader()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| OXML | NO | All |

### Syntax

OXML.$striphttpheader(*&cData*)

### Description

Strips the HTTP header from the argument.

# parsehttpauth()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| RESTful | NO | All |

### Syntax

**parsehttpauth**(*auth*)

### Description

Parses the HTTP Authorization header value *auth* and returns a row variable containing the extracted information. Column 1 of the returned row (named scheme) is the scheme (e.g. basic). Other columns are scheme dependent.

# parsehttpdate()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| RESTful | NO | All |

### Syntax

**parsehttpdate**(*httpdate*)

### Description

Parses date value *httpDate* in HTTP header format (e.g. Sun, 06 Nov 1994 08:49:37 GMT) and returns an Omnis date-time value (in UTC) or NULL if the value cannot be parsed successfully.

# pathsep()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**pathsep**()

### Description

Returns the pathname separator for the current OS.

### Example

```
Calculate lPathSep as pathsep()
;  returns '\' on Windows
;  returns ':' on macOS
;  returns '/' on Linux
```

# pday()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**pday**(datepart,date)

### Description

Returns the date of the day before the specified *date* when the *datepart* constant is set to kDay.

However, if one of the day of the week constants is used, this function returns the date of that day of the week preceding the specified *date*.

The datepart constants that you can use are: kDay, kSunday, kMonday, kTuesday, kWednesday, kThursday, kFriday, kSaturday.

### Example

```
Calculate lDate as pday(kDay,#D)
;  returns May 7 2003, assume #D is May 8, 2003


Calculate lDate as pday(kThursday,#D)
;  returns May 1 2003, which is the Thursday before #D, assume #D is May 8, 2003
```

# pick()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Lookup | YES | All |

### Syntax

**pick**(number,value0,value1[,value2]...)

### Description

Selects an item from a list of *values* (strings or numbers) using *number* as a zero-based index and returns the result.

The *number* argument is rounded to an integer and used to select the item. *value0* is returned if the result is 0, *value1* if the result is 1, *value2* if the result is 2, and so on. If the *number* is less than zero or greater than the number of values in the list, an empty value is returned. Note the list of values can be a mixture of string and numeric values.

### Example

```
Calculate lResult as pick(lVar1,123,'ABC','abc')
;  returns 123 if lVar1 evaluates to 0


Calculate lResult as pick(lVar2,2200,4500,6800)
;  returns 6800 if lVar2 evaluates to 2


Calculate lResult as pick(lVar3,'one',2,'three')
;  returns empty if lVar3 evaluates to 5
```

# pictconvfrom()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Picture | NO | All |

### Syntax

**pictconvfrom**(format,binary-raw-data)

### Description

pictconvfrom() takes the *binary-raw-data* in the specified *format* and returns a value suitable for use in relevant Omnis fields. Typically this means that pictconvfrom() adds header information to raw data.

Valid values for the format are as follows:

- **CS8**
  Omnis colour shared picture format (256 colours), including the internal Omnis header.
- **CS24**
  Omnis colour shared picture format (16 million colours) , including the internal Omnis header.
- **PNG**
  PNG (Portable Network Graphics) format (Raw, as written on disk)
- **CSC8**
  This is a 256 colour compressed format, which is an 8 bit PNG rather than 24 bit PNG format. Ideal for situations where images must have additional compression e.g. for downloading to the Omnis Web Client. Obviously, this format may reduce the colour detail of an image that was originally 24 bit.
- **JPEG**
  JPEG format (Raw, as written on disk)
- **PCX**
  PCX format (Raw, as written on disk)
- **WBMP**
  Wireless bitmap format, the standard format for Wireless Application Protocol (WAP) devices (Raw, as written on disk).

In addition, it is possible to add further formats using the external component interface.

The following example reads a JPEG file from disk and displays it:

### Example

```
ReadBinFile ("c:\myfile.jpg",lJpegData)
Do pictconvfrom("jpeg",lJpegData) Returns lJpegData
;  converts the JPEG data lJpegData into a suitable value for Omnis fields
```

# pictconvto()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Picture | NO | All |

### Syntax

**pictconvto**(source-format,source-data,dest-format)

### Description

Converts the binary *source-data* (with or without our internal header) from the *source-format* to the *dest-format*,and returns the resulting binary value.

See pictconvfrom() for details of possible formats. Note that WBMP is a monochrome format, meaning that conversion from a color format to WBMP is likely to result in a poor resulting image.

The following example converts the PCX data in lPcxData to JPEG.

### Example

```
Do pictconvto("pcx",lPcxData,"jpeg") Returns lJpegData
;  converts the PCX data in lPcxData to JPEG
```

# pictconvtypes()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Picture | NO | All |

### Syntax

**pictconvtypes**()

### Description

Returns a single column list, which contains all the picture conversion format types registered with Omnis.

### Example

```
Calculate lTypes as pictconvtypes()
;  returns a list containing all the picture conversion types
```

# pictformat()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Picture | NO | All |

### Syntax

**pictformat**(*source-data*)

### Description

Returns a character string which indicates the picture format of the binary *source-data*. See pictconvfrom() for details of possible formats.

Note that there are certain formats that **pictformat()** cannot recognize (for example, OLE data, GIF), and in these cases, **pictformat()** returns an empty string.

### Example

```
Calculate lFormat as pictformat(lJpegData)
;  returns "JPEG"
```

# pictsize()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Picture | NO | All |

### Syntax

**pictsize**(source-data,width,height)

### Description

Sets *width* and *height* to the width and height of the picture stored in the supplied binary or picture *source-data*.

If the function fails, for example because it cannot recognize the format of the data, then width and height will be zero.

### Example

```
Do pictsize(lJpegData,lWidth,lHeight)
;  returns the width and height of lJpegData
```

# platform()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**platform**()

### Description

Returns the OS code for the current Omnis executable.

### Example

```
Calculate lPlatform as platform()
;  returns 'W' on Windows 95/98/ME
;  returns 'N' on Windows NT/2000/2003/XP/Vista/Win7/8/10
;  returns 'X' on macOS
;  returns 'U' on Linux
```

# PortProfile.$getportnames()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| PortProfile | NO | All |

### Syntax

**PortProfile.$getportnames**(*list-of-names*)

### Description

Populates *list-of-names* with a list of all available ports on the current platform.

### Example

```
Do PortProfile.$getportnames(lPorts)
```

# PortProfile.$getprofilenames()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| PortProfile | NO | All |

### Syntax

**PortProfile.$getprofilenames**(*list-of-names*)

### Description

Populates *list-of-names* with a list of all profile names currently defined.

### Example

```
Do PortProfile.$getprofilenames(lPorts)
```

# pos()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**pos**(substring,string)

### Description

Returns the position of *substring* in *string*, or zero if *substring* is not contained in *string*.

The *substring* must be contained within *string* in its entirety for the returned value to be non-zero. Also, the comparison is case sensitive and only the first occurrence of *substring* is returned (see third example).

### Example

```
Calculate lResult as pos('Mouse','Mickey Mouse')
;  returns 8


Calculate lResult as pos('mouse','Mickey Mouse')
;  return 0, note case


Calculate lResult as pos(' ','R S W Smith')
;  returns 2, that is the position of the first space character


;  you can strip the extension from a filename using mid() and pos() combined
If pos('.',lFileName)     ;; if lFileName contains a dot
  Calculate lFileName as mid(lFileName,1,pos('.',lFileName)-1)
End If
```

# putenv()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**putenv**(name,value)

### Description

Sets the Omnis process environment variable with the specified *name* to the specified *value*; creates a new environment variable if necessary; returns Boolean true for success, false for failure.

### Example

```
;  Set the environment variable MYVAR to the value MYVALUE
Do putenv("MYVAR","MYVALUE")
```

# pwr()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Number | YES | All |

### Syntax

**pwr**(number,power)

### Description

Returns the result of raising a *number* to a *power*.

### Example

```
Calculate lResult as pwr(2,5)
;  returns 32


Calculate lResult as pwr(21.37,0.831)
;  returns 12.74 approx


Calculate lResult as int(pwr(1.105,5))
;  is the same as int(1.65) which returns 1
```

# rand()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Random | NO | All |

### Syntax

**rand**()

### Description

Returns a random real number in the range 0.0 < number < 1.0, inclusive (note no argument).

### Example

```
Calculate lResult as rand()
```

# randintrng()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Random | NO | All |

### Syntax

**randintrng**(number1,number2)

### Description

Returns a random integer between *number1* and *number2* inclusive.

### Example

```
Calculate lResult as randintrng(25,50)
```

# randrealrng()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Random | NO | All |

### Syntax

**randrealrng**(number1,number2)

### Description

Returns a random real number between *number1* and *number2* inclusive.

### Example

```
Calculate lResult as randrealrng(25,50)
```

# replace()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**replace**(source-string,target-string,replacement-string)

### Description

Replaces the first occurrence of the *target-string*, within the *source-string*, with the *replacement-string*. Returns the resulting string.

### Example

```
Calculate lString as replace('TIgerLogIc',chr(73),'i')
;  returns 'TigerLogIc'
```

# replaceall()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**replaceall**(source-string,target-string,replacement-string)

### Description

Replaces all occurrences of the *target-string*, within the *source-string*, with the *replacement-string*. Returns the resulting string.

### Example

```
Calculate lString as replaceall('TIgerLogIc',chr(73),'i')
;  returns 'TigerLogic'
```

# rgb()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**rgb**(red,green,blue)

### Description

Returns the RGB value formed from the 3 supplied color components (each of which must be 0-255).

The three arguments *red, green, blue* correspond to the RGB value of the desired color; each must be an integer in the range 0-255. For example, yellow has an RGB value of 255,255,0.

### Example

```
Do $cinst.$objs.FIELD1.$forecolor.$assign(rgb(0,178,178))
;  changes the object forecolor to green
```

## right()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**right**(string,n)

### Description

Returns the substring comprising the last *n* characters of the *string*.

### Example

```
Calculate lResult as right('Elephant',3)
;  returns 'ant'
```

## rmousedn()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Mouse | NO | All |

### Syntax

**rmousedn**()

### Description

Returns true if the right mouse button is held down (under Windows and Linux), or the Ctrl key is held down while the mouse/pointer is clicked (under macOS). If rmousedn() is true, mousedn() is also true but not vice versa (note no argument).

## rmouseup()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Mouse | NO | All |

### Syntax

**rmouseup**()

### Description

Returns true if, after being pressed, the right mouse button is up (under Windows and Linux) or the mouse is up after the mouse/pointer has been pressed with the Ctrl key held down (under macOS) (note no argument required).

# rnd()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Number | YES | All |

### Syntax

**rnd**(number,dp)

### Description

Rounds a *number* to a number of decimal places specified in *dp* and returns the result.

Note that the return value of **rnd()** is a character string. This is the only representation of the returned number guaranteed to hold the result correctly, due to potential floating point inaccuracies.

You need to be careful when comparing the return values of two calls to **rnd()**, since the return values are character strings, and will be compared as strings.

### Example

```
Calculate lResult as rnd(2.105693,5)
;  returns 2.10569


Calculate lResult as rnd(2.105693,3)
;  returns 2.106


Calculate lResult as rnd(0.5,0)
;  returns 1
```

# rolldice()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Random | NO | All |

### Syntax

**rolldice**(number,faces)

### Description

Returns the result of a die roll. You specify the *number* of dice to roll and the number of *faces* on each die.

### Example

```
Calculate lResult as rolldice(2,6)
;  "rolls" two normal, six-sided dice and puts the result in lResult
```

# rollstring()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Random | NO | All |

### Syntax

**rollstring**(string-formula)

### Description

Returns the result of a die roll from a *string-formula*.

The format of the *string-formula* is:

```
rollstring NdF [ + - * / offset ]
```

where N is the number of dice, d is a delimiter, and F is the number of faces for each die. In addition, you can add, subtract, multiply, or divide by an offset.

### Example

```
Calculate lResult as rollstring('2d6')
;  returns the result of rolling two standard sixed-faced dice


Calculate lResult as rollstring('3d6+1')


Calculate lResult as rollstring('12d4+6')
```

# row()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | YES | All |

### Syntax

**row**(expression1[,expression2]...)

### Description

Creates and returns a row with a column for each parameter set to the value of the supplied *expression*.

### Example

```
Calculate lRow1 as row(lVar1,lVar2,lVar3)
;  creates a row variable with the columns lVar1, lVar2, lVar3
```

# rpos()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**rpos**(substring,string)

### Description

Returns the position of the last occurrence of *substring* in *string*, or zero if *substring* is not contained in *string.*

The *substring* must be contained within *string* in its entirety for the returned value to be non-zero. Also, the comparison is case sensitive.

### Example

```
Calculate lResult as rpos('Mouse','Mickey Mouse')
;  returns 8


Calculate lResult as rpos('mouse','Mickey Mouse')
;  return 0, note case


Calculate lResult as rpos(' ','R S W Smith')
;  returns 6, that is the position of the last space character
```

# rxpos()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**rxpos**(rx,str,igncase,words,mchlen)

### Description

Returns position of characters matching regular expression *rx* in *str*, or zero for no match; sets *mchlen* to length of match. *igncase* and *words* are Boolean, true for ignore case or only match whole words.

### Regular Expressions

The function supports regular expressions using the following metacharacters:

| Metacharacters | Action |
|---|---|
| ^ | Beginning of line |
| $ | End of line |
| \| | Or |
| [abc] | Match any character enclosed in the brackets. |
| [^abc] | Match any character not enclosed in the brackets. |
| [a-z] | Match the range of characters specified by the hyphen. |
| . | Match any single character. |
| ( ) | Group the regular expression within the parentheses. |
| ? | Match zero or one of the preceding expression. |
| * | Match zero, one, or many of the preceding expression. |
| + | Match one or many of the preceding expression. |
| \ | Escape the metacharacter that follows so that the literal meaning of the character is used. |
| & | Reference the entire matched text for string substitution. |
| \n | Reference subgroup n within the matched text (n can be 1-9). |

The function *does not* support the following features:

**Word boundaries**
the \< begin word and \> end word metasequences.

**Back references**
the \n notation, which lets you reference a previously matched group.

**Repetitions**
the {min,max} metasequence that specifies a minimum and maximum repetition of a regular expression.

# setfye()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**setfye**(*date*)

### Description

Sets the *date* of the fiscal year end.

The *date* does not have to be in the current year, that is, the function ignores the year part of the date. The setting of the fiscal year end affects all other date functions that involve quarters. It returns the previous value so you can save it for later use.

### Example

```
Calculate lDate as setfye('MAR 31')
;  sets the fiscal year end to March 31st


Calculate lDate as setfye('12 31 03')
;  set the fiscal year end to December 31st and ignores the year
```

# setseed()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Random | NO | All |

### Syntax

**setseed**(*seed*)

### Description

Sets the random number *seed* for the random functions, such as rand(). setseed() converts *seed* into a Long number. It returns the previous seed as an integer number.

### Example

```
Calculate lResult as setseed(10)
;  sets seed to 10 and returns previous seed in lResult
```

# setws()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**setws**(datepart)

### Description

Sets the beginning of the week using one of the day of the week *datepart* constants.

It returns the previous value so you can save it for later use. If the *datepart* is invalid this function still returns the week start but does not change it.

The datepart constants that you can use are: kSunday, kMonday, kTuesday, kWednesday, kThursday, kFriday, kSaturday.

### Example

```
Calculate lDate as setws(kMonday)
;  sets Monday as the week start
```

## shift()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**shift**()

### Description

Returns true if the Shift key is being pressed.

## shufflelist()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Random | NO | All |

### Syntax

**shufflelist**(sourcelist,targetlist,number)

### Description

Shuffles the items in *sourcelist*, the specified *number* of times, and puts the results in *targetlist*.

A value of 2 or 3 for *number* provides a good shuffle. **shufflelist()** does not support Binary fields, List fields, and Picture fields stored in a list. An empty or null date converts to '31 DEC 00' in the *targetlist*.

### Example

```
Do shufflelist(lSourceList,lTargetList,3)
;  shuffles lSourceList three times and puts the result in lTargetList
```

## sin()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Trigonometric | YES | All |

### Syntax

**sin**(*angle*)

### Description

Returns the Sine of an *angle* where the *angle* is in degrees (or radians if #RAD is true).

### Example

```
Calculate lResult as sin(30)
;  returns 0.5
```

## sleep()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**sleep**(milliseconds)

### Description

Suspends execution for the specified number of *milliseconds*; returns true if execution suspended successfully or false if an error occurred.

## sqr()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Number | YES | All |

### Syntax

**sqr**(number)

### Description

Returns the square root of a *number*. Omnis defines the square root of a negative number X as *sqr*(abs(X)).

### Example

```
Calculate lResult as sqr(100)
;  returns 10


Calculate lResult as sqr('-301.56')
;  returns 17.37 approx


Calculate lResult as mid('Omnis',sqr(16),2)
;  returns 'is'
```

## stddevc()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | NO | All |

### Syntax

**stddevc**(listname,column[,ignore-nulls])

### Description

Returns the standard deviation for a list column specified by *listname* and *column*. stddevc() can only be used with columns defined using variables so it cannot be used with lists defined from a SQL class.

If you set *ignore_nulls* to 1, null values are ignored and not counted. If you omit this parameter or it evaluates to zero, nulls are treated as zero values and are counted.

### Example

```
Calculate lResult as jst(stddevc(lList,lCol1),'N2')
;  returns the standard deviation rounded to 2 decimal places
```

## stgetcol()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Client String Table | NO | All |

### Syntax

**stgetcol**(*table*)

### Description

Returns the name of the current column for string table *table* (iOS plug-in client methods only).

## stgettext()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | YES | All |

### Syntax

**stgettext**(*id*)

### Description

Returns the string with the *id* from a string table, or empty if the lookup fails. (Supported in client methods; when using $stringtable in the remote task supported in client and server methods for the task string table).

## StringTable.$colcnt()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$colcnt**([cTableName])

### Description

Returns the number of columns in string table cTableName, or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Calculate lResult as StringTable.$colcnt('MyStringTable')
;  returns the number of columns in MyStringTable
```

# StringTable.$getcolumnname()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

StringTable.$getcolumnname(*[cTableName]*)

### Description

Returns the current column name for the string table specified by *cTableName*, or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Calculate lResult as StringTable.$getcolumnname('MyStringTable')
;  returns the name of the current column in MyStringTable
```

# StringTable.$getcolumnnumber()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$getcolumnnumber**(*[cTableName]*)

### Description

Returns the current column number for the string table specified by *cTableName*, or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Calculate lResult as StringTable.$getcolumnnumber('MyStringTable')
;  returns the number of the current column in MyStringTable
```

# StringTable.$getlistfromfile()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$getlistfromfile**(*cPathname*)

### Description

Reads the string table file *cPathname*, and returns the string table list it contains.

# StringTable.$gettablelist()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$gettablelist**(*&lList*)

### Description

Populates a two column *lList* with the loaded string table names in column 1 and their pathnames in column 2. Define lList to have two character columns before calling this method.

### Example

```
Do StringTable.$gettablelist(lTableList)
;  returns a list of all loaded string tables
```

## StringTable.$gettext()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

StringTable.$gettext(*cRowID*)

### Description

Returns the text for a cell, or an error code less than zero (a kStringTable... constant). *cRowID* is either the row name within the current column, or when using multiple tables it has the syntax TABLENAME.ROWNAME[.COLUMNNAME].

### Example

```
Calculate lResult as StringTable.$gettext('A')
;  returns the text from the cell with id 'A' in the current column
```

## StringTable.$loadcolumn()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$loadcolumn**(cColumnNumberOrName,cTableName,cPathname)

### Description

Loads column *cColumnNumberOrName* from string table *cPathname* into table *cTableName*. Returns kStringTableOK or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Do StringTable.$loadcolumn(lCol1,lTable,lPath)
;  loads the column lCol1 from the table specified in lPath, into the table lTable
```

## StringTable.$loadexistingtablefromlist()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$loadexistingtablefromlist**(*cTableName,lList*)

### Description

Replaces an existing string table with the content of a list. Returns kStringTableOK or an error code which is less than zero (see the kStringTable... constants).

## StringTable.$loadlistfromtable()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$loadlistfromtable**(*cTableName*)

### Description

Copies string table *cTableName* to a list, and returns the list.

### Example

```
Calculate lTableList as StringTable.$loadlistfromtable(lTable)
;  copies the string table lTable to a list lTableList
```

## StringTable.$loadstringtable()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$loadstringtable**(*cTableName,cPathname*)

### Description

Loads string table from file *cPathname*, and gives it the name *cTableName*. Returns kStringTableOK or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Do StringTable.$loadstringtable(lTable,lPath)
;  loads the table specified in lPath into the table lTable
```

## StringTable.$loadtablefromlist()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$loadtablefromlist**(*cTableName,cPathname,lList*)

### Description

Creates a string table from a list. Returns kStringTableOK or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Do StringTable.$loadtablefromlist(lTable,lPath,lTableList)
```

```
;  creates a string table from lTableList
```

## StringTable.$redraw()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$redraw**(*hwnd*)

### Description

Redraws the window specified by *hwnd*. Returns kStringTableOK or an error code which is less than zero (see the kStringTable... constants).

## StringTable.$removestringtable()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$removestringtable**(*cPathname*)

### Description

Deletes the string table file specified by *cPathname*. Returns kStringTableOK or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Do StringTable.$removestringtable(lPath)
;  removes the string table specified in lPath
```

## StringTable.$rowcnt()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$rowcnt**(*[cTableName]*)

### Description

Returns the number of rows in string table *cTableName*, or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Calculate lResult as StringTable.$rowcnt('MyStringTable')
;  returns the number of row in MyStringTable
```

# StringTable.$savestringtable()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$savestringtable**(*cTableName*)

### Description

Saves the string table specified by *cTableName*. Returns kStringTableOK or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Do StringTable.$savestringtable(lTable)
;  saves the string table lTable
```

# StringTable.$setcolumn()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$setcolumn**(*cColumnNumberOrName*)

### Description

Sets the current column (which can be prefixed by 'TABLENAME.'. Returns kStringTableOK or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Do StringTable.$setcolumn(lCol1)
;  sets lCol1 as the current column
```

# StringTable.$unloadall()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$unloadall**()

### Description

Unloads all string tables from memory.

### Example

```
Do StringTable.$unloadall()
;  removes all string tables from memory
```

# StringTable.$unloadstringtable()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| StringTable | NO | All |

### Syntax

**StringTable.$unloadstringtable**(*cTableName*)

### Description

Unloads the string table *cTableName* from memory. Returns kStringTableOK or an error code which is less than zero (see the kStringTable... constants).

### Example

```
Do StringTable.$unloadstringtable(lTable)
;  removes the string table lTable from memory
```

## Strip()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| External functions | NO | All |

### Syntax

**Strip**(string,character)

### Description

Removes all instances of *character* from *string*, and returns the resulting string.

### Example

```
Calculate #S1 as Strip("Sunshine",'n')
;  returns "Sushie"
```

## strpbrk()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**strpbrk**(string1,string2)

### Description

Returns the substring of *string1* from the point where any of the characters in *string2* match *string1*.

### Example

```
Calculate lString as "this is a test"
Calculate lNewString as strpbrk(lString,"absj")
;  returns the string "s is a test"
```

## strspn()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**strspn**(string1,string2)

### Description

Returns the index of the first character in *string1* that does not match any of the characters in *string2*.

### Example

```
Calculate lResult as strspn(lString1,lString2)
;  lResult is a 1-based index, or len(lString1)+1 if all characters are in
lString2
```

## strtok()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | NO | All |

### Syntax

**strtok**('string1',string2)

### Description

Tokenises *string1*, using *string2* as the delimiter with which to tokenize.

This function returns tokens which are a substring of *string1* until any character in *string2* matches a character in *string1*. When **strtok()** is called, the token found in *string1* is removed, so that the function looks for the next token the next time it is called.

**Note: strtok()** does not support null characters in *string1* or *string2.*

### Example

```
Calculate lString1 as "The quick brown fox, jumped over the lazy dog"
Repeat
  Calculate lString2 as strtok('lString1'," ")
  OK message  {Token = [lString2]}
Until lString2=''
;  returns each word in lString1 in an OK Message
```

## stsetcol()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Client String Table | NO | All |

### Syntax

**stsetcol**(*table,col*)

### Description

Sets the current column for lookups from string table *table* to the column with name *col* and returns Boolean true for success (iOS plug-in client methods only).

## style()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**style**(textescape[,value])

### Description

Returns a style sequence suitable for embedding in styled text. *textEscape* is a kEsc... constant; *value* is a suitable value for the particular *textEscape.*

Valid constants for the *style-character* are listed under 'Text escapes' in the Constants pane of the IDE Catalog window (there is also a group called 'JavaScript text escapes' for the JavaScript client). Depending on the style character, you may also need to specify a *value*, which itself can be a constant. You can use this function to format the columns in a headed list box field; in this case, you can insert an icon by specifying its ID, change the text color, or set a text style such as italic.

Note that the alignment escapes (kEscCTab, kEscLTab and kEscRTab) are not designed to work with the headed list box. The headed list box method $setcolumnalign() can be used to set the alignment of a column.

The JavaScript client supports a subset of the standard text escapes, and some additional values specific to the JavaScript client, as documented by the following table:

| | |
|---|---|
| **kEscColor** | In a client-executed method, the color parameter must be a numeric literal or constant. |
| **kEscStyle** | In a client-executed method, the style parameter must be a numeric literal or constant. |
| **kEscBmp** | In a client-executed method, the icon id parameter must be either a numeric literal, or the sum of a numeric literal and an icon size constant e.g. 1710+k48x48 |
| **kEscJsNewline** | No additional parameters are required. Inserts a <br> line break tag. There is also a new function br() which can be used as short-hand to do this. |
| **kEscJsClose** | No additional parameters are required. Closes the current open style information (inserted by kEscColor or kEscStyle) in the styled text and reverts to the original color and text style. Note -kEscColor and kEscStyle insert a  tag to style the text. kEscJsClose closes the  tag. |
| **kEscJsHtml** | Inserts raw HTML (the second parameter to style()). |

### Example

```
;  to format the columns in a headed list box you could use the following
calculation
Do con(
lCol1,style(kEscBmp,1756),kTab,lCol2,style(kEscColor,kRed),kTab,lCol3,style(kEscSt
yle,kItalic))
;  give lCol1 a blue spot icon, lCol2 is red and lCol3 italic
```

## styledtohtml()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**styledtohtml**(*styledtext*)

### Description

Converts *styledtext* (a character string with styles embedded using the style() function) into HTML (JavaScript client only, execute on client only; this function cannot be used in a server method).

## sys()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**sys**(number)

### Description

Returns information about the current system depending on a *number* argument.

Using the **sys()** function, you can obtain system information such as the current printer name, the pathname of the current library, the screen width or height in pixels, and so on.

You can use the following *number* values with the sys() function.

| Number | Description |
|---|---|
| 1 | returns the Omnis version number. |
| 2 | returns the Omnis program type byte:<br>bit 0 = full program (value 1),<br>bit 1 = runtime (value 2),<br>bit 2 = evaluation (value 4),<br>bit 3 = integrated (value 8),<br>bit 4 = Unicode (value 16). Always set.<br>Note that the current version of Omnis does not support the use of integrated versions. |
| 3 | returns your company name entered on installation. |
| 4 | returns your name entered on installation. |
| 5 | returns your serial number entered on installation. |
| 6 | returns the platform code of the current executable:<br>'W' = Windows 95, 98 or ME,<br>'N' = Windows NT, 2000, 2003, XP, Vista, Windows 7/8/10<br>'U' = Linux<br>'X' = macOS |
| 7 | returns a string containing the version number of the current OS. For example, returns "6.2" under Windows 10, and "10.4.8" under macOS 10.4.8 |
| 8 | returns the platform type of the current Omnis program as a string: 'MAC64', 'WIN32', 'WIN64', 'UNIX' |
| 9 | returns the pathname separator for the current platform:<br>'\' (back slash) for Windows,<br>'/' (forward slash) for Unix and 64-bit macOS (32-bit Macs will return :) |

| | |
|---|---|
| 10 | returns the pathname of the current open library file. |
| 11,..,20 | returns the pathname(s) of the current open data file segment(s) (empty if none are open). |
| 21 | returns the pathname of the current print file name (empty if not open). |
| 22 | returns the pathname of the current import file name (empty if not open). |
| 23 | returns the current port name (empty if no port open). |
| 24 | returns the current report device, for example, Printer, Screen, Preview, File (Screen is the default). |
| 30,..,49 | returns the name of the installed user-defined menu(s) starting from the left-most menu (empty if none are installed). |
| 50,..,79 | returns the name of the open user-defined window(s) starting with the top window (empty if none are open). |
| 80 | returns the current report name (empty if no report set). |
| 81 | returns the current search name (empty if no search set). |
| 82 | returns the main file name (empty if no main file set). |
| 83 | returns the number of records in main file. |
| 85 | returns the name of currently executing method in the form class name/method number. |
| 86 | returns a list of event parameters for the current event. The first parameter is always pEventCode containing an event code representing the event, for example, evClick for a click on a button: a second or third event parameter may be supplied which tells you more about the event |
| 87 | returns horizontal screen resolution in pixels per inch |
| 88 | returns vertical screen resolution in pixels per inch |
| 89 | returns the text for the current search calculation, or empty if no calculation is set. |
| 90 | returns the number of methods on the method stack. This does not work for client requests running in a thread of the Multi-threaded Server. |
| 91 | returns the decimal separator |
| 92 | returns the thousand separator |
| 93 | returns the parameter separator for calculations |
| 94 | returns the file class field name separator |
| 101 | returns the current printer name, and network path (empty if not connected). |

| | |
|---|---|
| 104 | returns the screen width in pixels. |
| 105 | returns the screen height in pixels. |
| 106 | macOS: not relevant - returns a fixed large value.<br>Other platforms: returns the size in bytes of available physical memory. |
| 107 | macOS: not relevant - returns a fixed large value.<br>Other platforms: returns the total size in bytes of physical memory. |
| 108 | macOS: not relevant - returns a fixed large value.<br>Other platforms: returns a number between 0 and 100 that gives a general idea of current memory utilization, in which 0 indicates no memory use and 100 indicates full memory use. |
| 109 | macOS: not relevant - returns zero.<br>On Windows and Unix returns the unused memory in bytes. This is the number of bytes available in the paging file, added to the number of bytes of available physical memory. |
| 110 | Does not return a value using the 64-bit versions of Omnis, and can no longer be relied on as an accurate indicator of the processor type or computer in use.<br>returns the CPU type.<br>For Intel Processors:<br>3 = 80386<br>4 = 80486<br>5 = Pentium<br>For PowerMac Processors:<br>257 = PowerPC 601<br>259 = PowerPC 603<br>260 = PowerPC 604<br>262 = PowerPC 603e<br>263 = PowerPC 603ev<br>264 = PowerPC 750 & G3<br>265 = PowerPC 604e<br>266 = PowerPC 604ev<br>268 = G4<br>313 = G5 |
| 111 | (macOS only) returns the Apple ROM version: 121 = SI, 124 = IIsi, CI & FX. |
| 114 | (macOS only) returns 1 (true) if Apple events are available, 0 otherwise. |
| 115 | On all platforms except Windows Vista returns the pathname of the folder containing the Omnis executable, including the terminating path separator.<br>On Windows Vista returns the pathname of the folder containing the installed writeable files, including the terminating path separator (usually a sub-folder of the AppData Local folder). To get the pathname of the folder containing the Omnis executable, use sys(215). |
| 116 | (Unix only) returns 1 (true) if Omnis has been configured to force all file names to be lower case, 0 otherwise. |

| | |
|---|---|
| 118 | returns additional information about the operating system version; this works under Windows only.<br>The information includes major and minor version numbers, a build number, a platform identifier, and information about product suites and the latest Service Pack installed on the system. This function returns the operating system version information in the Windows OSVERSIONINFOEX structure, so you should obtain information about this structure for full details about the information returned (see the Microsoft web site). |
| 120 | (Windows only) returns the width of the current dialog base-width unit based on the current system font; this differs for Small and Large font mode. |
| 121 | (Windows only) returns the height of the current dialog base-width unit based on the current system font; this differs for Small and Large font mode. |
| 122 | returns true if the Web Client server communications listener started successfully. It returns false if listener startup failed, or has not yet occurred. |
| 130 | Not supported in Omnis Studio 5.0 and later. |
| 131 | Not supported in Omnis Studio 5.0 and later. |
| 132 | Not supported in Omnis Studio 5.0 and later. |
| 133 | Not supported in Omnis Studio 5.0 and later. |
| 134 | Not supported in Omnis Studio 5.0 and later. |
| 135 | Not supported in Omnis Studio 5.0 and later. |
| 136 | Not supported in Omnis Studio 5.0 and later. |
| 137 | Not supported in Omnis Studio 5.0 and later. |
| 138 | Not supported in Omnis Studio 5.0 and later. |
| 185 | returns the current executing method in the format:<br>Libraryname.Classname/Methodname/Linenumber<br>This is in addition to sys(85) which returns the current executing method in the form Classname/Methodname. |
| 190 | returns the number of times Omnis has loaded a class from disk and added it to the memory class cache. |
| 191 | returns the number of times Omnis deleted a memory class cache entry, when it added a class to the cache, meaning that the class deleted from the cache may need to be reloaded<br>sys(190) and sys(191) provide information you can use to monitor the impact of changing the preference $root.$prefs.$maxcachedclasses. Too low a value for this preference may result in a performance hit, due to too many classes being repeatedly loaded from disk. |
| 192 | sys(192) caters for both error handlers and other situations where information |

| | |
|---|---|
| | about the method stack might be useful. It returns a list representing the current method call stack (with a line for each line that would appear on the debugger stack menu). The first line in the list corresponds to the call to sys(192), and subsequent lines correspond to how the method running the previous line was called.<br>The list has the following columns:<br>classitem - item reference to the class containing the method.<br>object - the name of the object containing the method in the class; empty if it is a class method.<br>method - the name of the method.<br>line - the line number of the method line.<br>linetext - the text for the method line.<br>params - the parameters passed to the method. This is a two-column list, with columns name and value. The value is the value that would be displayed as a variable tooltip for the parameter.<br>methoditem - item reference to the method.<br>inst - item reference to the instance executing the method. |
| 193 | returns a list which is a copy of the trace log. |
| 194 | returns the list of open windows in the IDE. The list has the following columns:<br>windowname - the name of the window, as it would appear in the windows menu<br>classitem - if the window is a class or method editor, the item reference to the class; otherwise null<br>ismethodeditor - boolean, true if and only if the window is a method editor window<br>The current line is non-zero if and only if the window is the top design window, i.e. the top class editor or method editor window. When deciding the top design window, the catalog, component store, and property inspector are ignored. |
| 195 | returns the list of selected objects, if there is a top design window (as defined by sys(194) above), and if the top design window is a window, report, toolbar, menu, or remote form editor (NOT a method editor). The list has one column:<br>objectitem - the item reference of the selected object |
| 196 | returns the list of all open libraries (including private libraries) and their VCS build properties. The list has the following columns:<br>name - the internal name of the library<br>pathname - the pathname of the library file<br>vcsbuildersname - the $vcsbuildersname property of the library<br>vcsbuildnotes - the $vcsbuildnotes property of the library<br>vcsbuilddate - the $vcsbuilddate property of the library |
| 197 | returns true (1) if running on Windows XP with themes enabled, false (0) if not. |
| 198 | returns an integer which indicates the status of binding the web client server port number to the socket on which the server receives incoming connections. The value is -1 if bind has not been attempted yet, 0 if bind was successful, or a positive value (a socket layer error code) if the bind failed |
| 199 | returns a list with a row for each method command. The list has two columns: |

| | |
|---|---|
| | column 1 is the command group, column 2 is the command name |
| 202 | returns the command line parameters passed to Omnis |
| 203 | (Win32/Win64 only) returns 1 (true) if Omnis is running as a service |
| 204 | returns a list with a row for each function. The list has three columns: column 1 is the function group, column 2 is the function name and column 3 is the function description |
| 205 | returns the byte ordering of the hardware. True (1) for big-endian machines, false (0) for little-endian machines. |
| 209 | for macOS, returns the pathname of the folder containing the Omnis.app bundle, including the terminating path separator; this may be different to the pathname of the folder containing the Omnis executable (returned by sys(115)) if you are using Omnis as a bundle. For other platforms, returns the same pathname as sys(115). |
| 210 | returns the number of processors for the current machine (depending on the information reported by the operating system, the value may not reflect logical processor cores). |
| 212 | returns the list of sort fields for the executing method stack. The list has the following columns:<br>name - the name of the sort field<br>descending - boolean, true if this field is sorted in descending order<br>upper - boolean, true if sorting of this field is case-insensitive<br>subtotals - boolean, true if subtotals are printed when the sort field changes<br>newpage - boolean, true if a new page is started when the sort field changes |
| 215 | Returns the pathname of the folder containing the Omnis executable, including the terminating path separator. |
| 216 | Returns the pathname of the currently executing Omnis program. |
| 218 | Modifies the OEM character conversion table to leave CR and LF unchanged. |
| 219 | Restores the OEM character conversion table to the original mappings for CR and LF. |
| 227 | Returns the hardware ID of the system on which Omnis is running. A character string. |
| 228 | Modifies the OEM character conversion table to leave TAB unchanged. |
| 229 | Restores the OEM character conversion table to the original mapping for TAB. |
| 232 | (Win32/Win64 only) returns 1 (true) if Omnis is running as an elevated user or administrator |

**Example**

The following example uses *sys(6)* to test the current OS and branches accordingly.

```
Calculate lPlatform as sys(6)
If lPlatform='X'     ;; on macOS
```

```
  Do FileOps.$createdir('/Omnis/Test')
Else If lPlatform='U'     ;; on Linux
  Do FileOps.$createdir('/home/omnis/test')
Else     ;; on Windows platforms
  Do FileOps.$createdir('c:\Omnis\test')
End If
```

# tan()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Trigonometric | YES | All |

### Syntax

**tan**(number)

### Description

Returns the Tangent of an *angle* where the *angle* is in degrees (or radians if #RAD is true).

### Example

```
Calculate lResult as tan(45)
;  returns 1
```

# textsize()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Font handling | NO | Windows,Linux |

### Syntax

**textsize**(string,fontname,pointsize,style,'width','depth')

### Description

Returns the width and depth in pixels of the specified text or string.

Note that textsize() is deprecated. Use FontOps.$reptextheight(), FontOps.$reptextwidth(), FontOps.$wintextheight() or FontOps.$wintextwidth() instead.

The *string* parameter can be a literal string or character variable with a maximum length of 255; *fontname* is the name of the font; *pointsize* the point size of the font; *style* is represented by an integer, that is, 0 = Normal, 1 = Bold, 2 = Italic, 4 = Underline (or a combination of these: 3 would be bold-italic, for example). The *width* and *depth* parameters hold the returned values in pixels. The *width* and *depth*parameters are integer variables to hold the width and depth values returned; these must be in quotes. The function also returns a value of 0 to indicate the font does not exist or an error occurred, otherwise 1 is returned indicating the text was found.

### Example

```
Calculate lFontStyle as 6     ;; Italic Underline
Calculate lFontName as "Arial"
Calculate lFontSize as 16
If textsize(lString,lFontName,lFontSize,lFontStyle,'lWidth','lDepth')<>0
  ;  do something depending on lWidth and lDepth
Else
  ;  font didn't exist or error occurred
End If
```

# tim()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**tim**(number[,timeformat])

### Description

Converts the specified *number* value to a time determined by the *timeformat* argument and returns the result; #FT is used as the time formatting string if the second argument is not specified.

If the first argument is already a date/time, its format is changed to the format given by the second argument.

The #FT string defaults to 'H:N' and so *tim*(*number*) takes *number* to be a number of minutes. If you supply a format string such as 'N.S', *number* will be taken as a number of seconds.

With a second argument, **tim()** is equivalent to dat() with two arguments. The format string determines how the conversion is carried out.

### Example

```
Calculate lTime as tim(1)
;  returns 00:01 when #FT is H:N (the default)


Calculate lTime as tim(950)
;  returns 15:50


Calculate lTime as tim(950,'H:N.S')
;  returns 00:15.50, that is 950 seconds
```

# tot()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | NO | All |

### Syntax

**tot**([listname,]fieldname)

### Description

Returns the total of the stored values of *fieldname* in a list specified by *listname*.

The *fieldname* argument must be a field stored in the list, not a constant or expression. If the *listname* argument is not specified the current list is used. This function does not work for table based lists. If *fieldname* is not a numeric field, all values are converted to their numeric equivalents before being accumulated.

### Example

```
Calculate lResult as tot(lList,lCol1)
;  returns total of all lCol1 field values stored in the list lMyList
```

```
Calculate lResult as tot(lCol1)
;  returns total of all lCol1 field values stored in current list


Calculate lResult as tot(#LSEL)
;  returns total number of selected lines in the current list
```

# totc()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| List | NO | All |

### Syntax

**totc**([listname,]expression)

### Description

Returns the total of an *expression* evaluated for a list specified by *listname*.

If the *listname* argument is not specified, the current list is used. This function does not work for table based lists. The *expression* is totaled for the lines in the specified list.

This is a more general version of the tot() function.

### Example

```
;  If list lList contains field lCol1, the sum of the squares of all values of
lCol1 in the list is:
;  note that totc(lList,lCol1) is the same as tot(lList1,lCol1)
Calculate lResult as totc(lList,lCol1*lCol1)
```

# tracelog()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | YES | All |

### Syntax

**tracelog**(*string*)

### Description

Writes the *string* to the trace log (or does nothing if debugging is disabled using the library property $nodebug); returns true if the string was written. In a client executed method the *string* is sent to the console in the browser.

# trim()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**trim**(string[,leading=ktrue,trailing=ktrue,character=space_char])

### Description

Removes the specified *leading* and/or *trailing* character from the *string*.

You specify the character to be removed in the *character* argument. If this is omitted the space character is removed from the string by default.

### Example

```
Calculate lString as trim('   ABCDE')
;  returns 'ABCDE'


Calculate lString as trim('*****ABCDE*****',kTrue,kFalse,'*')
;  returns 'ABCDE*****'
```

## truergb()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| General | NO | All |

### Syntax

**truergb**(*color*)

### Description

Converts the specified *color* into its true RGB value and returns the result.

### Example

```
Calculate lValue as truergb(kRed)
;  returns RGB value for red


Calculate lValue as truergb(rgb(255,0,0))
;  returns RGB value for red
```

## tzcurrent()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**tzcurrent**()

### Description

Returns the character string identifying the time zone of the current date and time. The result can be mapped to an alternative using the Built-in strings.

## tzdaylight()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**tzdaylight**()

### Description

Returns the character string identifying the daylight saving time zone. The result can be mapped to an alternative using the built-in strings.

## tzstandard()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**tzstandard**()

### Description

Returns the character string identifying the standard time zone. The result can be mapped to an alternative using the built-in strings.

## uncompress()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Compression | NO | All |

### Syntax

**uncompress**(binary,uncompressed-length)

### Description

Uncompresses the *binary* variable (containing the result of the previous call to compress()) and returns the binary uncompressed data.

Note you need to supply the length of the original uncompressed data.

### Example

```
Calculate lOriginal as uncompress(lCompressed,50)
```

## unichr()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Unicode | YES | All |

### Syntax

**unichr**(code1[,code2]...)

### Description

Returns a string formed by concatenating the supplied Unicode character codes. Each code is either a number or a string of the form 'U+h', where h is 1-6 characters representing a hexadecimal value.

# unicode()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Unicode | YES | All |

### Syntax

**unicode**(string,position[,hex])

### Description

Returns the Unicode value of the character at the *position* in the *string*. The first *position* in the *string* is 1. If Boolean *hex* is true (default false) it returns a hex string 'U+h'.

# uniconv()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Unicode | NO | All |

### Syntax

**uniconv**(srctype,src,dsttype,dst,bom,errtxt)

### Description

Converts *src* to *dst*. Returns zero if ok, or errcode and *errtxt*. *Types* are kUniType... constants (not binary). If Boolean *Bom* is true, *dst* has a Unicode BOM if it can.

# upp()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| String | YES | All |

### Syntax

**upp**(string)

### Description

Returns the upper case representation of a *string*. Any non-alphabetic characters in the *string* are ignored.

### Example

```
Calculate lString as upp('Author')
;  returns 'AUTHOR'


Calculate lString as upp('oMnIs')
;  returns 'OMNIS'


Calculate lString as upp(mid('peripheral',3,3))
;  returns 'RIP'
```

# useradians()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Trigonometric | YES | All |

### Syntax

**useradians**(*[useradians]*)

### Description

Sets or returns #RAD. Either sets #RAD and returns the previous value, or if no parameter is supplied returns the current value of #RAD.

# utctoloc()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Date and Time | NO | All |

### Syntax

**utctoloc**(*datetime*)

### Description

Converts the *datetime* (or time) from UTC (Coordinated Universal Time) to the local timezone, and returns the result.

# utf8tochar()

| Function group | Execute on client | Platform(s) |
|---|---|---|
| Unicode | NO | All |

### Syntax

**utf8tochar**(*utf8*)

### Description

Returns the character string which is represented by the UTF-8 encoded parameter.