

# MBS Real Studio Compression Plugin Documentation

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## 0.1 Introduction

This is the PDF version of the documentation for the Real Studio Plug-in from Monkeybread Software Germany. Plugin part: MBS Real Studio Compression Plugin

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## Chapter 2

# Compression

### 2.1 class ZLibCompressMBS

class ZLibCompressMBS

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** A class for zlib compression.

#### 2.1.1 Methods

**Adler32(start as integer, data as string) as integer**

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Calculates a 32bit Adler Checksum about a given string.

**Notes:**

Set start to 0 for the first call.

Later you can pass the result as the new start value to add data to your checksum.

This function is part of the zlib library and given as a free utility function to this class.

**close**

Plugin Version: 3.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The destructor.

**Notes:**

There is no need to call this method except you want to free all resources of this object now without waiting for Realbasic to do it for you.

(e.g. some Realbasic versions crash on Windows if there are plugin objects not closed.)

**Constructor(BufferSize as integer=20000)**

Plugin Version: 9.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The constructor.

**Notes:**

The buffer size you specify is the output buffer size.

If this size is small, you need to flush with ProcessZip.

**CRC32(start as integer, data as string) as integer**

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Calculates a 32bit Checksum about a given string.

**Notes:**

Set start to 0 for the first call.

Later you can pass the result as the new start value to add data to your checksum.

This function is part of the zlib library and given as a free utility function to this class.

**EndZip**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Finalizes the current compression stream.

**Notes:**

You may check the Output buffer after this.

Error is set.

**GetOutput as string**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the contents of the output buffer.

**Notes:** The buffer is cleared after this function returns.

**InitZip(level as integer)**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Initializes the stream.

**Notes:**

Level is from 0 to 9.

Error is set.

**InputAvail as integer**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the number of bytes available in the input buffer.

**OutputSize as integer**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The size of bytes available in the output buffer.

**ProcessZip(Flush as boolean=false)**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Does zip compression.

**Notes:**

Reduces the size of the input buffer and writes new data to the output buffer.

If the input buffer is not empty after this call, you need to call it again, but empty the output buffer before. Error is set.

If flush is true, the data is flushed to output. Using flush=true all the the time will slow down compression, so use it only on the end to clear the output buffers.

### **SetInput(data as string) as boolean**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Fills the input buffer.

**Notes:**

Returns true if successfull.

The current input buffer size is 128 K, so you may use something smaller.

## **2.1.2 Properties**

### **CRC as Integer**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The Adler32 CRC value of the uncompressed data.

**Notes:** (Read only property)

### **Error as Integer**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error code.

**Notes:**

Values:

(Read and Write property)

Z_OK	0	(no error)
Z_STREAM_END	1	(Should be handles by the plugin inside)
Z_NEED_DICT	2	
Z_ERRNO	-1	
Z_STREAM_ERROR	-2	
Z_DATA_ERROR	-3	
Z_MEM_ERROR	-4	
Z_BUF_ERROR	-5	
Z_VERSION_ERROR	-6	

### ErrorMessage as String

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The error message for the last error.

**Notes:** (Read only property)

### OutputBufferSize as Integer

Plugin Version: 9.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The output buffer size used in the constructor.

**Notes:** (Read only property)

### TotalInput as Integer

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes processed so far.

**Notes:** (Read and Write property)

### TotalOutput as Integer

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes processed so far.

**Notes:** (Read and Write property)

### Version as String

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The version string of the used zlib library.

**Notes:** (Read only property)

### 2.1.3 Constants

#### **kASCII = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the data type constants.

#### **kBEST\_COMPRESSION = 9**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

#### **kBEST\_SPEED = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

#### **kBINARY = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the data type constants.

**kBLOCK = 5**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kBUF\_ERROR = -5**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kDATA\_ERROR = -3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kDEFAULT\_COMPRESSION = -1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**kDEFAULT\_STRATEGY = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kDEFLATED = 8**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression method constants.

**Notes:** The deflate compression method (the only one supported in this version)

**kERRNO = -1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kFILTERED = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kFINISH = 4**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kFIXED = 4**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kFULL\_FLUSH = 3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kHUFFMAN\_ONLY = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kMEM\_ERROR = -4**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kNEED\_DICT = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kNO\_COMPRESSION = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**kNO\_FLUSH = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kNULL = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The null value.

**kOK = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kPARTIAL\_FLUSH = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kRLE = 3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kSTREAM\_END = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kSTREAM\_ERROR = -2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kSYNC\_FLUSH = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kTEXT = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the data type constants.

**kUNKNOWN = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the data type constants.

**kVERSION\_ERROR = -6**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

## 2.2 class ZipFileInfoMBS

**class ZipFileInfoMBS**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** This class keeps the metadata for a zip file.

### 2.2.1 Methods

**SetDate(d as date)**

Plugin Version: 10.0 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Sets the date with a REALbasic date object.

**Notes:** A convenience function to make your life easier.

## 2.2.2 Properties

### Day as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

day of the month - [ 1,31 ]  
(Read and Write property)

### DosDate as UInt32

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The date in the 32bit DOS format.

**Notes:**

If `dos_date = 0`, the plugin will calculate it from the day, month, year, hour, minute and second properties.  
(Read and Write property)

### ExternalFileAttributes as UInt32

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** external file attributes.

**Notes:**

A 32 bit value.  
(Read and Write property)

### Hour as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

hours since midnight - [ 0,23 ]  
(Read and Write property)

### InternalFileAttributes as UInt32

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Internal file attributes.

**Notes:**

A 16 bit value.  
(Read and Write property)

### Minute as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

minutes after the hour - [ 0,59 ]  
(Read and Write property)

### Month as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

months since January - [ 0,11 ]  
(Read and Write property)

### Second as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

seconds after the minute - [ 0,59 ]  
(Read and Write property)

### Year as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.  
**Notes:**

years - [ 1980..2044 ]  
(Read and Write property)

## 2.3 class ZipMBS

### class ZipMBS

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The class for writing to a zip file.

**Notes:**

This is a simple class which uses zlib and has some limitations:

- \* only deflate as compression method
- only one date per file is preserved
- no resource forks on Mac OS
- no encoding handling
- only 2 GB per zip file.
- no Apple or Microsoft extensions for special file flags or permissions.

But it works nice to provide a zip file to clients. For example a download of JPEG files in an archive with one download from Web Edition.

Be aware that you can't compress Mac applications with this class, as the we don't preserve permissions, so the decompressed file has not the right flags set to make it executable.

In plugin version 11.1 we added zip64 flags for CreateFile method so you can create bigger zip archives. Still it seems not to work for our test to have zip archives bigger than 2 GB.

### 2.3.1 Methods

**Close(GlobalComment as string="")**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Close the zipfile.

**CloseFile**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Close the current file in the zipfile.

**CloseFileRaw(UncompressedSize as integer, CRC32 as integer)**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Close the current file in the zipfile.

**Notes:**

For files opened with parameter raw=true in CreateFile  
UncompressedSize and crc32 are value for the uncompressed size,

**Constructor(file as folderitem, append as integer = 0)**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Create a zipfile.

**Notes:**

If the file exist and append is AppendStatusCreateAfter, the zip will be created at the end of the file.  
(useful if the file contain a self extractor code)

If the file exist and append is AppendStatusAddInZip, we will add files in existing zip (be sure you don't add file that doesn't exist)

If the zipfile cannot be opened, the handle value will be zero.

AppendStatusCreateAfter seems not to be working currently.

**CreateFile**(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean = false)

Plugin Version: 11.1 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open a file in the ZIP for writing.

**Notes:**

filename: the filename in zip.

FileInfo: the file date.

ExtraLocal: contains the extrafield data the the local header.

ExtraGlobal: contains the extrafield data the the local header.

Comment: comment contain the comment string

CompressionMethod: contain the compression method (see Method\* constants)

Level: contain the level of compression (a value from -1 to 9. see Compression\* constants)

Zip64: If you want to have the zip file support more than 2 GB of data, set this to true to create a 64 bit file.

See also:

- 2.3.1 CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean) 28
- 2.3.1 CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean, WindowBits as integer, MemLevel as integer, Strategy as integer, Password as string, crcForCtypting as UInt32) 29
- 2.3.1 CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean, WindowBits as integer, MemLevel as integer, Strategy as integer, Password as string, crcForCtypting as UInt32, versionMadeBy as UInt32, flagBase as UInt32) 31

**CreateFile**(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean)

Plugin Version: 11.1 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open a file in the ZIP for writing with the possibility to write raw files.

**Notes:**

filename: the filename in zip.

FileInfo: the file date.

ExtraLocal: contains the extrafield data the the local header.

ExtraGlobal: contains the extrafield data the the local header.

Comment: comment contain the comment string

CompressionMethod: contain the compression method (see Method\* constants)

Level: contain the level of compression (a value from -1 to 9. see Compression\* constants)

Zip64: If you want to have the zip file support more than 2 GB of data, set this to true to create a 64 bit file.

Raw: If true you read the file raw (the data will not be compressed).

See also:

- 2.3.1 CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean = false) 28
- 2.3.1 CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean, WindowBits as integer, MemLevel as integer, Strategy as integer, Password as string, crcForCtypting as UInt32) 29
- 2.3.1 CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean, WindowBits as integer, MemLevel as integer, Strategy as integer, Password as string, crcForCtypting as UInt32, versionMadeBy as UInt32, flagBase as UInt32) 31

**CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean, WindowBits as integer, MemLevel as integer, Strategy as integer, Password as string, crcForCtypting as UInt32)**

Plugin Version: 11.1 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open a file in the ZIP for writing with the possibility to write raw files, chnage the compression and add a password.

**Notes:**

filename: the filename in zip.

FileInfo: the file date.

ExtraLocal: contains the extrafield data the the local header.

ExtraGlobal: contains the extrafield data the the local header.

Comment: comment contain the comment string

CompressionMethod: contain the compression method (see Method\* constants)

Level: contain the level of compression (a value from -1 to 9. see Compression\* constants)

Zip64: If you want to have the zip file support more than 2 GB of data, set this to true to create a 64 bit file.

Raw: If true you read the file raw (the data will not be compressed).

windowBits: Parameters for zlib compression. (for example -15)

memLevel: Parameters for zlib compression. (for example 8 or 9)

Strategy: Parameters for zlib compression. (See Strategy\* constants)

Password: The password to use.

`crcForCtypting`: the CRC value of the input file.

The `windowBits` parameter is the base two logarithm of the window size (the size of the history buffer). It should be in the range 8..15 for this version of the library. Larger values of this parameter result in better compression at the expense of memory usage. The default value is 15.

`windowBits` can also be -8..-15 for raw deflate. In this case, `-windowBits` determines the window size.

The `memLevel` parameter specifies how much memory should be allocated for the internal compression state. `memLevel=1` uses minimum memory but is slow and reduces compression ratio; `memLevel=9` uses maximum memory for optimal speed. The default value is 8. See `zconf.h` for total memory usage as a function of `windowBits` and `memLevel`.

The `strategy` parameter is used to tune the compression algorithm. Use the value `StrategyDefault` for normal data, `StrategyFiltered` for data produced by a filter (or predictor), `StrategyHuffmanOnly` to force Huffman encoding only (no string match), or `StrategyRLE` to limit match distances to one (run-length encoding). Filtered data consists mostly of small values with a somewhat random distribution. In this case, the compression algorithm is tuned to compress them better. The effect of `StrategyFiltered` is to force more Huffman coding and less string matching; it is somewhat intermediate between `StrategyDefault` and `StrategyHuffmanOnly`. `StrategyRLE` is designed to be almost as fast as `StrategyHuffmanOnly`, but give better compression for PNG image data. The `strategy` parameter only affects the compression ratio but not the correctness of the compressed output even if it is not set appropriately. `StrategyFixed` prevents the use of dynamic Huffman codes, allowing for a simpler decoder for special applications.

See also:

- 2.3.1 `CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean = false)`  
28
- 2.3.1 `CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean)`  
28
- 2.3.1 `CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean, WindowBits as integer, MemLevel as integer, Strategy as integer, Password as string, crcForCtypting as UInt32, versionMadeBy as UInt32, flagBase as UInt32)`  
31

**CreateFile**(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean, WindowBits as integer, MemLevel as integer, Strategy as integer, Password as string, crcForCtypting as UInt32, versionMadeBy as UInt32, flagBase as UInt32)

Plugin Version: 11.1 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open a file in the ZIP for writing with the possibility to write raw files, chnage the compression and add a password.

**Notes:**

filename: the filename in zip.

FileInfo: the file date.

ExtraLocal: contains the extrafield data the the local header.

ExtraGlobal: contains the extrafield data the the local header.

Comment: comment contain the comment string

CompressionMethod: contain the compression method (see Method\* constants)

Level: contain the level of compression (a value from -1 to 9. see Compression\* constants)

Zip64: If you want to have the zip file support more than 2 GB of data, set this to true to create a 64 bit file.

Raw: If true you read the file raw (the data will not be compressed).

windowBits: Parameters for zlib compression. (for example -15)

memLevel: Parameters for zlib compression. (for example 8 or 9)

Strategy: Parameters for zlib compression. (See Strategy\* constants)

Password: The password to use.

crcForCtypting: the CRC value of the input file.

versionMadeBy: value for Version made by field

flagBase: value for flag field (compression level info will be added)

The windowBits parameter is the base two logarithm of the window size (the size of the history buffer). It should be in the range 8..15 for this version of the library. Larger values of this parameter result in better compression at the expense of memory usage. The default value is 15.

windowBits can also be -8..-15 for raw deflate. In this case, -windowBits determines the window size.

The memLevel parameter specifies how much memory should be allocated for the internal compression state. memLevel=1 uses minimum memory but is slow and reduces compression ratio; memLevel=9 uses maximum memory for optimal speed. The default value is 8. See zconf.h for total memory usage as a function of windowBits and memLevel.

The strategy parameter is used to tune the compression algorithm. Use the value StrategyDefault for normal data, StrategyFiltered for data produced by a filter (or predictor), StrategyHuffmanOnly to force Huffman encoding only (no string match), or StrategyRLE to limit match distances to one (run-length encoding). Filtered data consists mostly of small values with a somewhat random distribution. In this

case, the compression algorithm is tuned to compress them better. The effect of `StrategyFiltered` is to force more Huffman coding and less string matching; it is somewhat intermediate between `StrategyDefault` and `StrategyHuffmanOnly`. `StrategyRLE` is designed to be almost as fast as `StrategyHuffmanOnly`, but give better compression for PNG image data. The strategy parameter only affects the compression ratio but not the correctness of the compressed output even if it is not set appropriately. `StrategyFixed` prevents the use of dynamic Huffman codes, allowing for a simpler decoder for special applications.

See also:

- 2.3.1 `CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean = false)` 28
- 2.3.1 `CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean)` 28
- 2.3.1 `CreateFile(Filename as string, FileInfo as ZipFileInfoMBS, ExtraLocal as string, ExtraGlobal as string, Comment as String, CompressionMethod as integer, Level as Integer, Zip64 as boolean, Raw as boolean, WindowBits as integer, MemLevel as integer, Strategy as integer, Password as string, crcForCtypting as UInt32)` 29

### Write(data as string)

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Write data in the zipfile.

**Notes:** A file in the zip archive must have been created.

## 2.3.2 Properties

### Handle as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The internal handle for the open zip archive.

**Notes:**

If 0 the constructor failed to create the file.  
(Read and Write property)

**Lasterror as integer**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error code.  
**Notes:** (Read and Write property)

**2.3.3 Constants****AppendStatusAddInZip=2**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the values for the constructor.

**AppendStatusCreate=0**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the values for the constructor.

**AppendStatusCreateAfter=1**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the values for the constructor.

**CompressionBestCompression=9**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**CompressionBestSpeed=1**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**CompressionDefault=-1**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**CompressionNo=0**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**MethodDeflated=8**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression method constants.

**MethodNone=0**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression method constants.

**Notes:** Use this value for no compression.

**StrategyDefault=0**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy modes.

**StrategyFiltered=1**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy modes.

**StrategyFixed=4**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy modes.

**StrategyHuffmanOnly=2**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy modes.

**StrategyRLE=3**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy modes.

**ZipBadZipFile=-103**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**ZipInternalError=-104**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**ZipOk=0**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**ZipParameterError=-102**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

## 2.4 class ZLibDecompressMBS

**class ZLibDecompressMBS**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** A class for zlib decompression.

### 2.4.1 Methods

**Adler32(start as integer, data as string) as integer**

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Calculates a 32bit Adler Checksum about a given string.

**Notes:**

Set start to 0 for the first call.

Later you can pass the result as the new start value to add data to your checksum.

This function is part of the zlib library and given as a free utility function to this class.

**close**

Plugin Version: 3.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The destructor.

**Notes:**

There is no need to call this method except you want to free all resources of this object now without waiting for Realbasic to do it for you.

(e.g. some Realbasic versions crash on Windows if there are plugin objects not closed.)

**Constructor(BufferSize as integer=20000)**

Plugin Version: 9.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The constructor.

**Notes:**

The buffer size you specify is the output buffer size.

If this size is small, you need to flush with ProcessZip.

**CRC32(start as integer, data as string) as integer**

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Calculates a 32bit Checksum about a given string.

**Notes:**

Set start to 0 for the first call.

Later you can pass the result as the new start value to add data to your checksum.

This function is part of the zlib library and given as a free utility function to this class.

**EndZip**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Finalizes the current decompression stream.

**Notes:**

You may check the Output property after this.

Error is set.

**GetOutput as string**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the content of the output buffer.

**Notes:** The buffer is cleared after this function returns.

**InitZip**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Initializes the stream.

**Notes:** Error is set.

**InputAvail as integer**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes available in the input buffer.

**OutputSize as integer**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes available in the output buffer.

**ProcessZip(Flush as boolean=false)**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Does zip compression.  
**Notes:**

Reduces the size of the input buffer and writes new data to the output buffer.

If the input buffer is not "" after this call, you need to call it again, but empty the output buffer before.

Error is set.

If flush is true, the data is flushed to output. Using flush=true all the the time will slow down compression, so use it only on the end to clear the output buffers.

### SetInput(data as string) as boolean

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Fills the input buffer.

#### Notes:

Returns true if successful.

The current plugin uses a 128 K input buffer.

## 2.4.2 Properties

### Error as Integer

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error code.  
**Notes:**

Values:

Z_ OK	0	(no error)
Z_ STREAM_ END	1	(Should be handles by the plugin inside)
Z_ NEED_ DICT	2	
Z_ ERRNO	-1	
Z_ STREAM_ ERROR	-2	
Z_ DATA_ ERROR	-3	
Z_ MEM_ ERROR	-4	
Z_ BUF_ ERROR	-5	
Z_ VERSION_ ERROR	-6	

(Read and Write property)

### ErrorMessage as String

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The error message for the last error.

**Notes:** (Read only property)

### **OutputBufferSize as Integer**

Plugin Version: 9.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The output buffer size used in the constructor.

**Notes:** (Read only property)

### **TotalInput as Integer**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes processed so far.

**Notes:** (Read and Write property)

### **TotalOutput as Integer**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes processed so far.

**Notes:** (Read and Write property)

### **Version as String**

Plugin Version: 3.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The version string of the used zlib library.

**Notes:** (Read only property)

## **2.4.3 Constants**

### **kASCII = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the data type constants.

**kBEST\_COMPRESSION = 9**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**kBEST\_SPEED = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**kBINARY = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the data type constants.

**kBLOCK = 5**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kBUF\_ERROR = -5**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kDATA\_ERROR = -3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kDEFAULT\_COMPRESSION = -1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**kDEFAULT\_STRATEGY = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kDEFLATED = 8**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression method constants.

**Notes:** The deflate compression method (the only one supported in this version)

**kERRNO = -1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kFILTERED = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kFINISH = 4**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kFIXED = 4**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kFULL\_FLUSH = 3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kHUFFMAN\_ONLY = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kMEM\_ERROR = -4**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kNEED\_DICT = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kNO\_COMPRESSION = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**kNO\_FLUSH = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kNULL = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The null value.

**kOK = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kPARTIAL\_FLUSH = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kRLE = 3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression strategy constants.

**kSTREAM\_END = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kSTREAM\_ERROR = -2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

**kSYNC\_FLUSH = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the flush constants.

**kTEXT = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the data type constants.

**kUNKNOWN = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the data type constants.

**kVERSION\_ ERROR = -6**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the return codes for the compression/decompression functions.

**Notes:** Negative values are errors, positive values are used for special but normal events.

## 2.5 Globals

**CompressBZip2MBS(buf as string,level as integer) as string**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Compresses the data and returns it as string.

**Example:**

```
dim s as string = "Hello World"
s=CompressBZip2MBS(s,9)
```

**Notes:** Compression level is going from 0 to 9, where 0 is no compression and 9 is best compression.

**CompressLZWMBS(buf as string) as string**

Plugin Version: 6.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Compresses string using LZW algorithm.

**Example:**

```
dim s as string
dim b as BinaryStream
dim f as FolderItem
dim l as integer

f=SpecialFolder.Desktop.Child("output.tiff")
b=f.OpenAsBinaryFile(false)
s=b.Read(b.Length)
b.Close

l=lenb(s)
s=CompressLZWMBS(s)
```

```

f=SpecialFolder.Desktop.Child("output.compressed.tiff")
b=f.CreateBinaryFile("text")
b.Write s
b.Close

s=DecompressLZWMBS(s,l)

f=SpecialFolder.Desktop.Child("output.uncompressed.tiff")
b=f.CreateBinaryFile("text")
b.Write s
b.Close

```

**Notes:**

Please remember that the LZW algorithm can be implemented quite different. This one is byte based, uses 12bit offsets and a 4096 entry table.

Returns "" on low memory or Stack Overflow or Output buffer overflow.  
(buffer and stack size may be increased on request for future plugin versions)

**CompressZLibMBS(buf as string,level as integer) as string**

Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Compresses the data and returns it as string.

**Example:**

```

dim s as string = "Hello World"
s=CompressZLibMBS(s,9)

```

**Notes:** Compression level is going from 0 to 9, where 0 is no compression and 9 is best compression.

**DecompressBZip2MBS(buf as string,size as integer) as string**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Decompresses the data and returns it as string.

**Example:**

```
dim s as string = "Hello World"
s=CompressBZip2MBS(s,9)
s=DecompressBZip2MBS(s,10000)
```

```
MsgBox s
```

**Notes:** As DecompressZLibMBS can't know the size of the decompressed data you should give it a hint. Best is to save the size of the decompressed data on compression. Else you must guess the size which can be 10 times the size of the compressed data.

**DecompressLZWMBS(buf as string,size as integer) as string**

Plugin Version: 6.3 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Decompresses string using LZW algorithm.

**Notes:**

Please remember that the LZW algorithm can be implemented quite different. This one is byte based, uses 12bit offsets and a 4096 entry table.

Returns "" on low memory or Stack Overflow or Output buffer overflow.  
(buffer and stack size may be increased on request for future plugin versions)

Size of the uncompressed length is only a guess for how big the output buffer needs to be. Actual string returned will often be smaller.

**DecompressZLibMBS(buf as string,size as integer) as string**

Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Decompresses the data and returns it as string.

**Example:**

```
dim s as string = "Hello World"
s=CompressZLibMBS(s,9)
s=DecompressZLibMBS(s,10000)
```

MsgBox s

**Notes:** As DecompressZLibMBS can't know the size of the decompressed data you should give it a hint. Best is to save the size of the decompressed data on compression. Else you must guess the size which can be 10 times the size of the compressed data.

## 2.6 class GZipFileMBS

class GZipFileMBS

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** A class to read and write gzip byte streams.

**Notes:** A .gz file is just the content of the original file compressed. No header.

### 2.6.1 Methods

**Adler32(start as integer, data as string) as integer**

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Calculates a 32bit Adler Checksum about a given string.

**Notes:**

Set start to 0 for the first call.

Later you can pass the result as the new start value to add data to your checksum.

This function is part of the zlib library and given as a free utility function to this class.

**Close**

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The destructor.

**Notes:** There is no need to call this method except you want to free all resources of this object now without waiting for Realbasic to do it for you.

**CloseForString as string**

Plugin Version: 11.1 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Closes the file and returns the string.

**Example:**

```
Function GZIPStringWriteMBS(data as string) As string
dim g as new GZipFileMBS
```

```
if g.CreateForString then
g.Write data
```

```
Return g.CloseForString
end if
End Function
```

**Notes:**

Only for use with CreateForString function.  
Returns empty string on any error.

**CRC32(start as integer, data as string) as integer**

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Calculates a 32bit Checksum about a given string.

**Notes:**

Set start to 0 for the first call.  
Later you can pass the result as the new start value to add data to your checksum.

This function is part of the zlib library and given as a free utility function to this class.

**CreateForString as boolean**

Plugin Version: 11.1 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Creates a new gzip file in memory.

**Example:**

```
Function GZIPStringWriteMBS(data as string) As string
dim g as new GZipFileMBS
```

```
if g.CreateForString then
g.Write data
```

```
Return g.CloseForString
end if
End Function
```

**Notes:**

Use with the CloseForString method to compress data in memory.  
Returns false on any error and true on success.

**Flush(flush as integer)**

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Flushes all pending output into the compressed file.

**Notes:**

The parameter flush is as in the zlib deflate() function.  
LastError is set.  
Flush should be called only when strictly necessary because it can degrade compression.

**Open(file as folderitem, mode as string) as boolean**

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Opens a gzip (.gz) file for reading or writing.

**Notes:**

The mode parameter is as in fopen ("rb" read binary or "wb" for write binary) but can also include a compression level ("wb9") or a strategy: 'f' for filtered data as in "wb6f", 'h' for Huffman only compression as in "wb1h".

Open can be used to read a file which is not in gzip format; in this case Read will directly read from the file without decompression.

Open returns NULL if the file could not be opened or if there was insufficient memory to allocate the (de)compression state; errno can be checked to distinguish the two cases (if errno is zero, the zlib error is Z\_MEM\_ERROR).

Returns false on any error and true on success.

### OpenString(data as string) as boolean

Plugin Version: 9.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Opens a gzip (.gz) file for reading from a file.

#### Example:

```
Function GZipStringReadMBS(compressedData as string) As string
dim g as new GZipFileMBS

const BlockSize=1000000

if g.OpenString(compressedData) then

dim parts(-1) as string

while not g.eof
dim s as string=g.Read(BlockSize)
parts.Append s
wend

Return Join(parts,"")
end if
End Function
```

**Notes:** Same as Open, but reading from the given string.

### Read(data as integer) as string

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Reads the given number of bytes into a string.

#### Notes:

Returns "" on any error.

May return less bytes than requested.  
Lasterror is set.

### ReadByte as integer

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Reads one byte from the file.

### Rewind

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Moves the file position for reading files to the file start.

**Notes:** Equal to: position=0

### SetParameter(level as integer, strategy as integer)

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Dynamically update the compression level or strategy.

**Notes:**

Lasterror is set.

Possible values:

FILTERED	1
HUFFMAN_ONLY	2
DEFAULT_STRATEGY	0

### Write(data as string)

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Writes a string to a file.

**Notes:**

Note that encoding can make trouble as the raw bytes from the string are written. Lasterror is set.

### WriteByte(data as integer)

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Writes one byte to the file.

## 2.6.2 Properties

### EOF as Boolean

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns true if reading is on the end of the file.

#### Notes:

Returns true on any error.  
(Read only property)

### ErrorCode as Integer

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the last zlib error number.

#### Notes:

If an error occurred in the file system and not in the compression library, errnum is set to Z\_ ERRNO and the application may consult errno to get the exact error code. (errno is currently not available in Realbasic)

Error codes:

(Read only property)

Z_OK	0
Z_STREAM_END	1
Z_NEED_DICT	2
Z_ERRNO	-1
Z_STREAM_ERROR	-2
Z_DATA_ERROR	-3
Z_MEM_ERROR	-4
Z_BUF_ERROR	-5
Z_VERSION_ERROR	-6

### ErrorMessage as String

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the error message for the last error which occurred on the given compressed file.

**Notes:** (Read only property)

### Handle as Integer

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The current zlib file handle.

**Notes:** (Read and Write property)

### Lasterror as Integer

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error code reported.

**Notes:**

0 for success.

-1 for failure.

(Read and Write property)

### Position as Integer

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The current file position.

**Notes:**

Not all positions are available.  
e.g. on writing you can not move back.  
Moving forward will add bytes with value 0 to the file.  
Lasterror is set.  
(Read and Write property)

### Version as String

Plugin Version: 4.2 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The version string of the used zlib library.  
**Notes:** (Read only property)

## 2.7 class BZip2FileMBS

### class BZip2FileMBS

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** A class to read and write bzip2 byte streams.  
**Notes:** A .bz2 file is just the content of the original file compressed. No header.

### 2.7.1 Methods

#### Close

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The destructor.  
**Notes:**

There is no need to call this method except you want to free all resources of this object now without waiting for Realbasic to do it for you.  
(e.g. some Realbasic versions crash on Windows if there are plugin objects not closed.)

**Flush**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Flushes all pending output into the compressed file.

**Open(file as folderitem, mode as string) as boolean**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Opens a .bz2 file for reading or writing, using the given file path.

**Notes:**

Returns false on failure.

Mode can be "r" for reading and "w" for writing. Or other values fopen accepts.

**OpenString(data as string) as boolean**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Opens a bzip compressed file from the given string.

**Notes:** Returns true on success and false on failure.

**Read(data as integer) as string**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Reads data from a compressed file.

**Write(data as string)**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Writes data to the file and compresses it.

## 2.7.2 Properties

### ErrorCode as Integer

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error code.  
**Notes:** (Read only property)

### ErrorMessage as String

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error message.  
**Notes:** (Read only property)

### Handle as Integer

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The current bzip file handle.  
**Notes:** (Read and Write property)

### Lasterror as Integer

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error value.  
**Notes:** (Read and Write property)

### Version as String

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns a string indicating the library version.  
**Notes:** (Read only property)

## 2.8 class BZip2CompressMBS

### class BZip2CompressMBS

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** A class for bzip2 compression.

### 2.8.1 Methods

#### Close

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The destructor.  
**Notes:**

There is no need to call this method except you want to free all resources of this object now without waiting for Realbasic to do it for you.

(e.g. some Realbasic versions crash on Windows if there are plugin objects not closed.)

#### Constructor(BufferSize as integer=20000)

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The constructor.  
**Notes:**

The buffer size you specify is the output buffer size.  
If this size is small, you need to flush with ProcessZip.

#### EndZip

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Finalizes the current compression stream.

**Notes:**

You may check the Output property after this.  
Error is set.

**GetOutput as string**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the content of the output buffer.

**Notes:** The buffer is cleared after this function returns.

**InitZip(level as integer)**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Initializes the stream.

**Notes:**

Level is from 0 to 9.

Error is set.

**InputAvail as integer**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the number of bytes available in the input buffer.

**OutputSize as integer**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The size of bytes available in the output buffer.

**ProcessZip(Flush as boolean=false)**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Does zip compression.

**Notes:**

Reduces the size of the input buffer and writes new data to the output buffer.

If the input buffer is not empty after this call, you need to call it again, but empty the output buffer before.

Error is set.

If flush is true, the data is flushed to output. Using flush=true all the the time will slow down compression, so use it only on the end to clear the output buffers.

### **SetInput(data as string) as boolean**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Fills the input buffer.

#### **Notes:**

Returns true if successfull.

The current plugin uses a 128 K input buffer.

## **2.8.2 Properties**

### **Error as Integer**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error code.

**Notes:** (Read and Write property)

### **OutputBufferSize as Integer**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The output buffer size used in the constructor.

**Notes:** (Read only property)

### **TotalInput as UInt64**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes processed so far.

**Notes:** (Read and Write property)

### TotalOutput as UInt64

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes processed so far.

**Notes:** (Read and Write property)

### Version as String

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The version string of the used zlib library.

**Notes:** (Read only property)

## 2.8.3 Constants

### kCONFIG\_ERROR = -9

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:**

Indicates that the library has been improperly compiled on your platform – a major configuration error. Specifically, it means that `sizeof(char)`, `sizeof(short)` and `sizeof(int)` are not 1, 2 and 4 respectively, as they should be. Note that the library should still work properly on 64-bit platforms which follow the LP64 programming model – that is, where `sizeof(long)` and `sizeof(void*)` are 8. Under LP64, `sizeof(int)` is still 4, so `libbz2`, which doesn't use the long type, is OK.

This should never happen with the plugin.

### kDATA\_ERROR = -4

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned when a data integrity error is detected during decompression. Most importantly, this means when stored and computed CRCs for the data do not match. This value is also returned upon detection of any other anomaly in the compressed data.

**kDATA\_ERROR\_MAGIC = -5**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** As a special case of kDATA\_ERROR, it is sometimes useful to know when the compressed stream does not start with the correct magic bytes ('B' 'Z' 'h').

**kFINISH = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the command constants for bzip.

**kFINISH\_OK = 3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** In Compress, the requested flush/finish/nothing-special action was completed successfully.

**kFLUSH = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the command constants for bzip.

**kFLUSH\_OK = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** In Compress, the requested flush/finish/nothing-special action was completed successfully.

**kIO\_ERROR = -6**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned by Read and Write when there is an error reading or writing in the compressed file, and by ReadOpen and WriteOpen for attempts to use a file for which the error indicator (viz, ferror(f)) is set. On receipt of kIO\_ERROR, the caller should consult errno and/or perror to acquire operating-system specific information about the problem.

**kMEM\_ERROR = -3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned when a request to allocate memory failed. Note that the quantity of memory needed to decompress a stream cannot be determined until the stream's header has been read. So Decompress and Read may return kMEM\_ERROR even though some of the compressed data has been read. The same is not true for compression; once CompressInit or WriteOpen have successfully completed, kMEM\_ERROR cannot occur.

**kOK = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** The requested action was completed successfully.

**kOUTBUFF\_FULL = -8**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned by BuffToBuffCompress and BuffToBuffDecompress to indicate that the output data will not fit into the output buffer provided.

**kPARAM\_ERROR = -2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned when a parameter to a function call is out of range or otherwise manifestly incorrect. As with kSEQUENCE\_ERROR, this denotes a bug in the client code. The distinction between kPARAM\_ERROR and kSEQUENCE\_ERROR is a bit hazy, but still worth making.

**kRUN = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the command constants for bzip.

**kRUN\_OK = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** In Compress, the requested flush/finish/nothing-special action was completed successfully.

**kSEQUENCE\_ERROR = -1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** When using the library, it is important to call the functions in the correct sequence and with data structures (buffers etc) in the correct states. libbzip2 checks as much as it can to ensure this is happening, and returns kSEQUENCE\_ERROR if not. Code which complies precisely with the function semantics, as detailed below, should never receive this value; such an event denotes buggy code which you should investigate.

**kSTREAM\_END = 4**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Compression of data was completed, or the logical stream end was detected during decompression.

**kUNEXPECTED\_EOF = -7**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned by Read when the compressed file finishes before the logical end of stream is detected.

## 2.9 class BZip2DecompressMBS

**class BZip2DecompressMBS**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** A class for bzip2 decompression.

### 2.9.1 Methods

**Close**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The destructor.

**Notes:**

There is no need to call this method except you want to free all resources of this object now without waiting for Realbasic to do it for you.

(e.g. some Realbasic versions crash on Windows if there are plugin objects not closed.)

**Constructor(BufferSize as integer=20000)**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The constructor.

**Notes:**

The buffer size you specify is the output buffer size.

If this size is small, you need to flush with ProcessZip.

### **EndZip**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Finalizes the current decompression stream.

**Notes:**

You may check the Output property after this.  
Error is set.

### **GetOutput as string**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the content of the output buffer.

**Notes:** The buffer is cleared after this function returns.

### **InitZip**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Initializes the stream.

**Notes:** Error is set.

### **InputAvail as integer**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the number of bytes available in the input buffer.

### **OutputSize as integer**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The size of bytes available in the output buffer.

### ProcessZip

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Does zip compression.  
**Notes:**

Reduces the size of the input buffer and writes new data to the output buffer.  
If the input buffer is not "" after this call, you need to call it again, but empty the output buffer before.  
Error is set.

### SetInput(data as string) as boolean

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Fills the input buffer.  
**Notes:**

Returns true if successful.  
The current plugin uses a 128 K input buffer.

## 2.9.2 Properties

### Error as Integer

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error code.  
**Notes:** (Read and Write property)

### OutputBufferSize as Integer

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The output buffer size used in the constructor.  
**Notes:** (Read only property)

**TotalInput as UInt64**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes processed so far.

**Notes:** (Read and Write property)

**TotalOutput as UInt64**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The number of bytes processed so far.

**Notes:** (Read and Write property)

**Version as String**

Plugin Version: 9.7 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The version string of the used zlib library.

**Notes:** (Read only property)

### 2.9.3 Constants

**kCONFIG\_ERROR = -9**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:**

Indicates that the library has been improperly compiled on your platform – a major configuration error. Specifically, it means that `sizeof(char)`, `sizeof(short)` and `sizeof(int)` are not 1, 2 and 4 respectively, as they should be. Note that the library should still work properly on 64-bit platforms which follow the LP64 programming model – that is, where `sizeof(long)` and `sizeof(void*)` are 8. Under LP64, `sizeof(int)` is still 4, so `libbzip2`, which doesn't use the long type, is OK.

This should never happen with the plugin.

**kDATA\_ERROR = -4**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned when a data integrity error is detected during decompression. Most importantly, this means when stored and computed CRCs for the data do not match. This value is also returned upon detection of any other anomaly in the compressed data.

**kDATA\_ERROR\_MAGIC = -5**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** As a special case of `kDATA_ERROR`, it is sometimes useful to know when the compressed stream does not start with the correct magic bytes ('B' 'Z' 'h').

**kFINISH = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the command constants for bzip.

**kFINISH\_OK = 3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** In Compress, the requested flush/finish/nothing-special action was completed successfully.

**kFLUSH = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the command constants for bzip.

**kFLUSH\_OK = 2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** In Compress, the requested flush/finish/nothing-special action was completed successfully.

**kIO\_ERROR = -6**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned by Read and Write when there is an error reading or writing in the compressed file, and by ReadOpen and WriteOpen for attempts to use a file for which the error indicator (viz, `ferror(f)`) is set. On receipt of `kIO_ERROR`, the caller should consult `errno` and/or  `perror` to acquire operating-system specific information about the problem.

**kMEM\_ERROR = -3**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned when a request to allocate memory failed. Note that the quantity of memory needed to decompress a stream cannot be determined until the stream's header has been read. So Decompress and Read may return `kMEM_ERROR` even though some of the compressed data has been read. The same is not true for compression; once `CompressInit` or `WriteOpen` have successfully completed, `kMEM_ERROR` cannot occur.

**kOK = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** The requested action was completed successfully.

**kOUTBUFF\_FULL = -8**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned by `BuffToBuffCompress` and `BuffToBuffDecompress` to indicate that the output data will not fit into the output buffer provided.

### **kPARAM\_ERROR = -2**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned when a parameter to a function call is out of range or otherwise manifestly incorrect. As with `kSEQUENCE_ERROR`, this denotes a bug in the client code. The distinction between `kPARAM_ERROR` and `kSEQUENCE_ERROR` is a bit hazy, but still worth making.

### **kRUN = 0**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the command constants for `bzip`.

### **kRUN\_OK = 1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** In `Compress`, the requested flush/finish/nothing-special action was completed successfully.

### **kSEQUENCE\_ERROR = -1**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** When using the library, it is important to call the functions in the correct sequence and with data structures (buffers etc) in the correct states. `libzip2` checks as much as it can to ensure this is happening, and returns `kSEQUENCE_ERROR` if not. Code which complies precisely with the function semantics, as detailed below, should never receive this value; such an event denotes buggy code which you should investigate.

**kSTREAM\_END = 4**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Compression of data was completed, or the logical stream end was detected during decompression.

**kUNEXPECTED\_EOF = -7**

Plugin Version: 9.7 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**Notes:** Returned by Read when the compressed file finishes before the logical end of stream is detected.

## 2.10 class UnZipMBS

**class UnZipMBS**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** A class to decompress a zip archive.

**Example:**

```
// open zip archive
dim f as FolderItem=SpecialFolder.Desktop.Child("test.zip")
dim z as new UnZipMBS(f)

// let's start
z.GoToFirstFile
do

// get details on this file:
dim info as UnZipFileInfoMBS = z.FileInfo
dim name as string = z.FileName

if left(name,8) <>"_ _ MACOSX" then // ignore Mac special files for metadata
z.OpenCurrentFile
if z.Lasterror=0 then

// create output file (if you want to support folders, this needs to be changed. See other examples)
dim outfile as folderitem = GetFolderItem(Name)
dim b as BinaryStream = BinaryStream.Create(outfile, true)
```

```

dim s as string

// now read 100 KB chunks and write them to new file
do
s=z.ReadCurrentFile(100000)
b.Write s
loop until lenb(s)=0

// cleanup
b.Close
z.CloseCurrentFile

end if
end if

// move to next file until we reach the end
z.GoToNextFile
loop until z.Lasterror<>0

```

**Notes:**

This is a simple class which uses zlib and has some limitations:

- \* only deflate as compression method
- only one date per file is preserved
- no resource forks on Mac OS
- no text encoding handling
- only 2 GB per zip file.
- no Apple or Microsoft extensions for special file flags or permissions.

**2.10.1 Methods****Close**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Close a ZipFile.

**Notes:**

Use CloseCurrentFile to close any open file before using Close.  
Lasterror is UnZipOK on success.

**CloseCurrentFile**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Close the file in the zip archive opened with OpenCurrentFile.

**Notes:** Lasterror is set to UnzipCRCError if all the file was read but the CRC was not correct.

**Comment as string**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Get the global comment string of the ZipFile.

**CommentSize as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Size of the global comment of the zipfile.

**CompareFileNames(filename1 as string, filename2 as string, CaseSensitive as integer) as integer**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Compare two filename (fileName1,fileName2).

**Notes:**

If iCaseSensitivity = 1, comparison is case sensitivity (like strcmp)

If iCaseSensitivity = 2, comparison is not case sensitivity (like strcmpi or strcasecmp)

If iCaseSensitivity = 0, case sensitivity is default of your operating system (like 1 on Unix, 2 on Windows)

**Constructor(data as memoryblock)**

Plugin Version: 10.5 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open a Zip file from data in the memoryblock.

**Notes:**

The Handle property is zero on failure and not zero on success.

The memory block must have a known size.

See also:

- 2.10.1 Constructor(data as string) 76
- 2.10.1 Constructor(file as folderitem) 76
- 2.10.1 Constructor(file as folderitem, Offset as integer) 76

**Constructor(data as string)**

Plugin Version: 10.5 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open a Zip file from data in the string.

**Notes:** The Handle property is zero on failure and not zero on success.

See also:

- 2.10.1 Constructor(data as memoryblock) 75
- 2.10.1 Constructor(file as folderitem) 76
- 2.10.1 Constructor(file as folderitem, Offset as integer) 76

**Constructor(file as folderitem)**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open a Zip file from a file.

**Notes:** The Handle property is zero on failure and not zero on success.

See also:

- 2.10.1 Constructor(data as memoryblock) 75
- 2.10.1 Constructor(data as string) 76
- 2.10.1 Constructor(file as folderitem, Offset as integer) 76

**Constructor(file as folderitem, Offset as integer)**

Plugin Version: 11.0 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open a Zip file from a file starting at the offset.

**Notes:** The Handle property is zero on failure and not zero on success.  
See also:

- 2.10.1 Constructor(data as memoryblock) 75
- 2.10.1 Constructor(data as string) 76
- 2.10.1 Constructor(file as folderitem) 76

### Count as UInt64

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Total number of entries in the zip archive.

**Notes:** This value is stored in the zip archive as 16 bit integer, so maximum value is 65535. The plugin can extract more files than that number.

### EOF as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns 1 if you are on the end of a file.

**Notes:** This is not to test whether you are on the end of the zip archive.

### FileInfo as UnZipFileInfoMBS

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Queries file information for the current file.

**Notes:** Returns nil on any error.

### FileName as string

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The filename of the current open file.

**Notes:** This name has no text encoding defined, as the plugin has no idea what text encoding was used. You may need to define the text encoding as being ASCII, Windows, MacRoman or whatever, when you work with this file name.

**FilePosition as UnZipFilePositionMBS**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The current file position.

**Notes:**

You can read or set the current file you edit.  
(Read and Write computed property)

**GetLocalExtrafield as string**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Read extra field from the current file (opened by unzOpenCurrentFile)

**Notes:** This is the local-header version of the extra field (sometimes, there is more info in the local-header version than in the central-header)

**GoToFirstFile**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Set the current file of the zipfile to the first file.

**Notes:** Lasterror is UnzipOk on success.

**GoToNextFile**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Set the current file of the zipfile to the next file.

**Notes:** Lasterror is UnzipOk if there is no problem and UnzipEndOfListError if the actual file was the latest.

**LocateFile(filename as string, CaseSensitive as integer)**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Try locate the file filename in the zipfile.

**Example:**

```

// open zip archive
dim f as FolderItem=SpecialFolder.Desktop.Child("test.zip")
dim z as new UnZipMBS(f)

// let's search the file
z.LocateFile "test.rtf",2

if z.Lasterror = z.UnzipOk then
dim info as UnZipFileInfoMBS = z.FileInfo
MsgBox "OK: "+str(info.UncompressedSize)+" bytes"
else
MsgBox "Failed."
end if

```

**Notes:**

For the CaseSensitivity signification, see CompareFileNames. Text encoding must match the text encoding of the files.

Lasterror is UnzipOk if the file is found. It becomes the current file, UnzipEndOfListError if the file is not found.

**Offset as UInt64**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Get or set the current index of the file in the zip directory.

**Notes:**

If you set this value, you basicly move to another file.  
(Read and Write computed property)

**OpenCurrentFile**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open for reading data the current file in the zipfile.

See also:

- 2.10.1 `OpenCurrentFile`(byref method as integer, byref level as integer, raw as boolean) 80
- 2.10.1 `OpenCurrentFile`(byref method as integer, byref level as integer, raw as boolean, password as string) 80
- 2.10.1 `OpenCurrentFile`(password as string) 81

### **`OpenCurrentFile`(byref method as integer, byref level as integer, raw as boolean)**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Same than `OpenCurrentFile`, but opens file for reading raw data (not uncompressed).

#### **Notes:**

if `raw=true` the file data is returned uncompressed. If `raw` is false, it is decompressed for you.

Method will receive the method of compression.

level will receive the level of compression.

See also:

- 2.10.1 `OpenCurrentFile` 79
- 2.10.1 `OpenCurrentFile`(byref method as integer, byref level as integer, raw as boolean, password as string) 80
- 2.10.1 `OpenCurrentFile`(password as string) 81

### **`OpenCurrentFile`(byref method as integer, byref level as integer, raw as boolean, password as string)**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Same than `OpenCurrentFile`, but opens file for reading raw data (not uncompressed) and with a password.

#### **Notes:**

if `raw=true` the file data is returned uncompressed. If `raw` is false, it is decompressed for you.

Method will receive the method of compression.

level will receive the level of compression.

See also:

- 2.10.1 `OpenCurrentFile` 79
- 2.10.1 `OpenCurrentFile`(byref method as integer, byref level as integer, raw as boolean) 80
- 2.10.1 `OpenCurrentFile`(password as string) 81

**OpenCurrentFile(password as string)**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Open for reading data the current file in the zipfile.

**Notes:** password is a crypting password.

See also:

- 2.10.1 OpenCurrentFile 79
- 2.10.1 OpenCurrentFile(byref method as integer, byref level as integer, raw as boolean) 80
- 2.10.1 OpenCurrentFile(byref method as integer, byref level as integer, raw as boolean, password as string) 80

**Position as UInt64**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the current position in uncompressed data.

**Position2 as UInt64**

Plugin Version: 11.1 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Returns the current position in compressed data.

**Notes:** This property is useful to show progressbar with progress over reading the original zip file.

**ReadCurrentFile(size as integer) as string**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Read bytes from the current file (opened by OpenCurrentFile).

**Notes:** Returns "" on any error or on file end.

### 2.10.2 Properties

#### Handle as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The internal handle for the unzip object.

**Notes:** (Read and Write property)

#### Lasterror as integer

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The last error code.

**Notes:** (Read and Write property)

### 2.10.3 Constants

#### CompressionBestCompression=9

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

#### CompressionBestSpeed=1

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

#### CompressionDefault=-1

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**CompressionNo=0**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression level constants.

**MethodDeflated=8**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression methods.

**MethodNone=0**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the compression methods.

**StrategyDefault=0**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy constants.

**StrategyFiltered=1**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy constants.

**StrategyFixed=4**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy constants.

**StrategyHuffmanOnly=2**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy constants.

**StrategyRLE=3**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the strategy constants.

**UnzipBadUnZipFile=-103**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**UnzipCRCError=-105**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**UnzipEndOfListError=-100**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**UnzipInternalError=-104**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**UnzipOk=0**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

**UnzipParameterError=-102**

Plugin Version: 8.6 Console & Web: No Mac: Yes, Win: Yes, Linux: Yes, . **Function:** One of the error constants.

## 2.11 class UnZipFilePositionMBS

**class UnZipFilePositionMBS**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** This class contains information about a file in the zipfile.

### 2.11.1 Properties

**NumberOfFile as UInt64**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The index of the file.

**Notes:** (Read and Write property)

**PositionInZipDirectory as UInt64**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Offset in zip file directory.

**Notes:** (Read and Write property)

## 2.12 class UnZipFileInfoMBS

### class UnZipFileInfoMBS

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** This class keeps the metadata for a zip file.

### 2.12.1 Properties

#### CompressedSize as UInt64

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The compressed file size.

**Notes:** (Read and Write property)

#### CompressionMethod as UInt32

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The compression method.

**Notes:** (Read and Write property)

#### CRC as UInt32

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The 32bit file checksum.

**Notes:** (Read and Write property)

#### Date as Date

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The date as a REALbasic date object.

**Notes:** (Read and Write property)

**Day as integer**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

day of the month - [ 1,31 ]  
(Read and Write property)

**DiskNumStart as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Disk number start.

**Notes:** (Read and Write property)

**DosDate as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Last mod file date in DOS format.

**Notes:** (Read and Write property)

**ExternalFileAttributes as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** External file attributes.

**Notes:** (Read and Write property)

**Flag as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** general purpose bit flag.

**Notes:**

A 16 bit value.  
(Read and Write property)

**Hour as integer**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

hours since midnight - [ 0,23 ]

(Read and Write property)

**InternalFileAttributes as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** Internal file attributes.

**Notes:** (Read and Write property)

**Minute as integer**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

minutes after the hour - [ 0,59 ]

(Read and Write property)

**Month as integer**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

months since January - [ 0,11 ]

(Read and Write property)

**Second as integer**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

seconds after the minute - [ 0,59 ]  
(Read and Write property)

#### **SizeFileComment as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** file comment length.  
**Notes:** (Read and Write property)

#### **SizeFileExtra as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** extra field length.  
**Notes:** (Read and Write property)

#### **SizeFilename as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** filename length.  
**Notes:** (Read and Write property)

#### **UncompressedSize as UInt64**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The uncompressed file size.  
**Notes:** (Read and Write property)

#### **Version as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The version used to make the archive.  
**Notes:** (Read and Write property)

**VersionNeeded as UInt32**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The version needed to extract.

**Notes:** (Read and Write property)

**Year as integer**

Plugin Version: 8.6 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The file time.

**Notes:**

years - [ 1980..2044 ]

(Read and Write property)

## Chapter 3

# Encryption and Hash

### 3.1 Globals

**Adler32MemoryMBS(adler as integer, buf as memoryblock, offset as integer, length as integer) as integer**

Plugin Version: 5.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The Adler-32 hash function from the zlib library.

**Notes:**

Offset and length must be correct for your memoryblock or you will crash your application!

Update a running Adler-32 checksum with the bytes and return the updated checksum. If buf is nil, this function returns the required initial value for the checksum.

An Adler-32 checksum is almost as reliable as a CRC32 but can be computed much faster.

**Adler32StringMBS(adler as integer, buf as string) as integer**

Plugin Version: 5.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The Adler-32 hash function from the zlib library.

**Example:**

```
dim b as binarystream // some stream
dim adler as integer
```

```

dim data as string
dim originalAdler as integer = 12345

adler=Adler32MemoryMBS(0,nil,0,0)

data=b.read(10000)
while data<>""
adler=Adler32StringMBS(adler, data)
data=b.read(10000)
wend

if adler <>originalAdler then msgbox "Error in checksum!"

```

**Notes:**

Update a running Adler-32 checksum with the bytes and return the updated checksum. If buf is nil, this function returns the required initial value for the checksum.

An Adler-32 checksum is almost as reliable as a CRC32 but can be computed much faster.

**CRC32MemoryMBS(crc as integer, buf as memoryblock, offset as integer, length as integer) as integer**

Plugin Version: 5.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The crc32 hash function from the zlib library.

**Notes:**

Offset and length must be correct for your memoryblock or you will crash your application!

Update a running crc with the bytes and return the updated crc. If buf is nil, this function returns the required initial value for the crc. Pre- and post-conditioning (one's complement) is performed within this function so it shouldn't be done by the application.

**CRC32StringMBS(crc as integer, buf as string) as integer**

Plugin Version: 5.4 Console & Web: Yes Mac: Yes, Win: Yes, Linux: Yes, . **Function:** The crc32 hash function from the zlib library.

**Example:**

```
dim originalCrc as integer // original CRC
dim crc as integer // new crc
dim data as string
dim b as binarystream

crc=0

data=b.read(10000)
while data<>""
crc=CRC32StringMBS(crc, data)
data=b.read(10000)
wend

if crc <>originalCrc then msgbox "Error in checksum!"
```

**Notes:** Update a running crc with the bytes and return the updated crc. If buf is nil, this function returns the required initial value for the crc. Pre- and post-conditioning (one's complement) is performed within this function so it shouldn't be done by the application.



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