

NAME

Archive::Tar - module for manipulations of tar archives

SYNOPSIS

DESCRIPTION

Archive::Tar provides an object oriented mechanism for handling tar files. It provides class methods for quick and easy files handling while also allowing for the creation of tar file objects for custom manipulation. If you have the IO::Zlib module installed, Archive::Tar will also support compressed or gzipped tar files.

An object of class Archive::Tar represents a .tar(.gz) archive full of files and things.

Object Methods

Archive::Tar->new([\$file, \$compressed])

Returns a new Tar object. If given any arguments, new() calls the read() method automatically, passing on the arguments provided to the read() method.

If new() is invoked with arguments and the read() method fails for any reason, new() returns undef.

\$tar->read (\$filename|\$handle, [\$compressed, {opt => 'val'}])

Read the given tar file into memory. The first argument can either be the name of a file or a reference to an already open filehandle (or an IO::Zlib object if it's compressed)

The read will replace any previous content in \$tar!

The second argument may be considered optional, but remains for backwards compatibility. Archive::Tar now looks at the file magic to determine what class should be used to open the file and will transparently Do The Right Thing.

Archive::Tar will warn if you try to pass a bzip2 compressed file and the IO::Zlib / IO::Uncompress::Bunzip2 modules are not available and simply return.

Note that you can currently **not** pass a gzip compressed filehandle, which is not opened with IO::Zlib, a bzip2 compressed filehandle, which is not opened with IO::Uncompress::Bunzip2, nor a string containing the full archive information (either compressed or uncompressed). These are worth while features, but not currently implemented. See the TODO section.



The third argument can be a hash reference with options. Note that all options are case-sensitive.

limit

Do not read more than limit files. This is useful if you have very big archives, and are only interested in the first few files.

filter

Can be set to a regular expression. Only files with names that match the expression will be read.

md5

Set to 1 and the md5sum of files will be returned (instead of file data) my \$iter = Archive::Tar->iter(\$file, 1, {md5 => 1}); while(my f =iter->()) { print f->data . "\t" . f->full_path . \$/; }

extract

If set to true, immediately extract entries when reading them. This gives you the same memory break as the extract_archive function. Note however that entries will not be read into memory, but written straight to disk. This means no Archive::Tar::File objects are created for you to inspect.

All files are stored internally as Archive::Tar::File objects. Please consult the Archive::Tar::File documentation for details.

Returns the number of files read in scalar context, and a list of Archive::Tar::File objects in list context.

\$tar->contains_file(\$filename)

Check if the archive contains a certain file. It will return true if the file is in the archive, false otherwise.

Note however, that this function does an exact match using eq on the full path. So it cannot compensate for case-insensitive file- systems or compare 2 paths to see if they would point to the same underlying file.

\$tar->extract([@filenames])

Write files whose names are equivalent to any of the names in @filenames to disk, creating subdirectories as necessary. This might not work too well under VMS. Under MacPerl, the file's modification time will be converted to the MacOS zero of time, and appropriate conversions will be done to the path. However, the length of each element of the path is not inspected to see whether it's longer than MacOS currently allows (32 characters).

If extract is called without a list of file names, the entire contents of the archive are extracted.

Returns a list of filenames extracted.

\$tar->extract_file(\$file, [\$extract_path])

Write an entry, whose name is equivalent to the file name provided to disk. Optionally takes a second parameter, which is the full native path (including filename) the entry will be written to.

For example:

```
$tar->extract_file( 'name/in/archive', 'name/i/want/to/give/it' );
$tar->extract_file( $at_file_object, 'name/i/want/to/give/it' );
```

Returns true on success, false on failure.



\$tar->list_files([\@properties])

Returns a list of the names of all the files in the archive.

If list_files() is passed an array reference as its first argument it returns a list of hash references containing the requested properties of each file. The following list of properties is supported: name, size, mtime (last modified date), mode, uid, gid, linkname, uname, gname, devmajor, devminor, prefix.

Passing an array reference containing only one element, 'name', is special cased to return a list of names rather than a list of hash references, making it equivalent to calling <code>list_files</code> without arguments.

\$tar->get_files([@filenames])

Returns the Archive::Tar::File objects matching the filenames provided. If no filename list was passed, all Archive::Tar::File objects in the current Tar object are returned.

Please refer to the Archive::Tar::File documentation on how to handle these objects.

\$tar->get_content(\$file)

Return the content of the named file.

\$tar->replace_content(\$file, \$content)

Make the string \$content be the content for the file named \$file.

\$tar->rename(\$file, \$new_name)

Rename the file of the in-memory archive to \$new_name.

Note that you must specify a Unix path for \$new_name, since per tar standard, all files in the archive must be Unix paths.

Returns true on success and false on failure.

\$tar->chmod(\$file, \$mode)

Change mode of \$file to \$mode.

Returns true on success and false on failure.

\$tar->chown(\$file, \$uname [, \$gname])

Change owner \$file to \$uname and \$gname.

Returns true on success and false on failure.

\$tar->remove (@filenamelist)

Removes any entries with names matching any of the given filenames from the in-memory archive. Returns a list of Archive::Tar::File objects that remain.

\$tar->clear

clear clears the current in-memory archive. This effectively gives you a 'blank' object, ready to be filled again. Note that clear only has effect on the object, not the underlying tarfile.

\$tar->write ([\$file, \$compressed, \$prefix])

Write the in-memory archive to disk. The first argument can either be the name of a file or a reference to an already open filehandle (a GLOB reference).

The second argument is used to indicate compression. You can either compress using gzip or bzip2. If you pass a digit, it's assumed to be the gzip compression level (between 1 and 9), but the use of constants is preferred:

```
# write a gzip compressed file
$tar->write( 'out.tgz', COMPRESS_GZIP );
```



```
# write a bzip compressed file
$tar->write( 'out.tbz', COMPRESS_BZIP );
```

Note that when you pass in a filehandle, the compression argument is ignored, as all files are printed verbatim to your filehandle. If you wish to enable compression with filehandles, use an IO::Zlib or IO::Compress::Bzip2 filehandle instead.

The third argument is an optional prefix. All files will be tucked away in the directory you specify as prefix. So if you have files 'a' and 'b' in your archive, and you specify 'foo' as prefix, they will be written to the archive as 'foo/a' and 'foo/b'.

If no arguments are given, write returns the entire formatted archive as a string, which could be useful if you'd like to stuff the archive into a socket or a pipe to gzip or something.

\$tar->add_files(@filenamelist)

Takes a list of filenames and adds them to the in-memory archive.

The path to the file is automatically converted to a Unix like equivalent for use in the archive, and, if on MacOS, the file's modification time is converted from the MacOS epoch to the Unix epoch. So tar archives created on MacOS with **Archive::Tar** can be read both with *tar* on Unix and applications like *suntar* or *Stuffit Expander* on MacOS.

Be aware that the file's type/creator and resource fork will be lost, which is usually what you want in cross-platform archives.

Instead of a filename, you can also pass it an existing Archive::Tar::File object from, for example, another archive. The object will be clone, and effectively be a copy of the original, not an alias.

Returns a list of Archive::Tar::File objects that were just added.

\$tar->add_data (\$filename, \$data, [\$opthashref])

Takes a filename, a scalar full of data and optionally a reference to a hash with specific options.

Will add a file to the in-memory archive, with name \$filename and content \$data. Specific properties can be set using \$opthashref. The following list of properties is supported: name, size, mtime (last modified date), mode, uid, gid, linkname, uname, gname, devmajor, devminor, prefix, type. (On MacOS, the file's path and modification times are converted to Unix equivalents.)

Valid values for the file type are the following constants defined in Archive::Tar::Constants:

FILE

Regular file.

HARDLINK

SYMLINK

Hard and symbolic ("soft") links; linkname should specify target.

CHARDEV

BLOCKDEV

Character and block devices. devmajor and devminor should specify the major and minor device numbers.

DIR

Directory.

FIFO

FIFO (named pipe).



SOCKET

Socket.

Returns the Archive::Tar::File object that was just added, or undef on failure.

\$tar->error([\$BOOL])

Returns the current errorstring (usually, the last error reported). If a true value was specified, it will give the Carp::longmess equivalent of the error, in effect giving you a stacktrace.

For backwards compatibility, this error is also available as *Archive::Tar::error* although it is much recommended you use the method call instead.

\$tar->setcwd(\$cwd);

Archive::Tar needs to know the current directory, and it will run Cwd::cwd() every time it extracts a *relative* entry from the tarfile and saves it in the file system. (As of version 1.30, however, Archive::Tar will use the speed optimization described below automatically, so it's only relevant if you're using extract_file()).

Since Archive::Tar doesn't change the current directory internally while it is extracting the items in a tarball, all calls to Cwd::cwd() can be avoided if we can guarantee that the current directory doesn't get changed externally.

To use this performance boost, set the current directory via

```
use Cwd;
$tar->setcwd( cwd() );
```

once before calling a function like $extract_file$ and Archive::Tar will use the current directory setting from then on and won't call Cwd::cwd() internally.

To switch back to the default behaviour, use

```
$tar->setcwd( undef );
```

and Archive::Tar will call Cwd::cwd() internally again.

If you're using Archive::Tar's extract() method, setcwd() will be called for you.

Class Methods

Archive::Tar->create_archive(\$file, \$compressed, @filelist)

Creates a tar file from the list of files provided. The first argument can either be the name of the tar file to create or a reference to an open file handle (e.g. a GLOB reference).

The second argument is used to indicate compression. You can either compress using gzip or bzip2. If you pass a digit, it's assumed to be the gzip compression level (between 1 and 9), but the use of constants is preferred:

```
# write a gzip compressed file
Archive::Tar->create_archive( 'out.tgz', COMPRESS_GZIP, @filelist );
# write a bzip compressed file
Archive::Tar->create_archive( 'out.tbz', COMPRESS_BZIP, @filelist );
```

Note that when you pass in a filehandle, the compression argument is ignored, as all files are printed verbatim to your filehandle. If you wish to enable compression with filehandles, use an IO::Zlib or IO::Compress::Bzip2 filehandle instead.

The remaining arguments list the files to be included in the tar file. These files must all exist. Any files



which don't exist or can't be read are silently ignored.

If the archive creation fails for any reason, create_archive will return false. Please use the error method to find the cause of the failure.

Note that this method does not write on the fly as it were; it still reads all the files into memory before writing out the archive. Consult the FAQ below if this is a problem.

Archive::Tar->iter(\$filename, [\$compressed, {opt => \$val}])

Returns an iterator function that reads the tar file without loading it all in memory. Each time the function is called it will return the next file in the tarball. The files are returned as Archive::Tar::File objects. The iterator function returns the empty list once it has exhausted the files contained.

The second argument can be a hash reference with options, which are identical to the arguments passed to read().

Example usage:

```
my $next = Archive::Tar->iter( "example.tar.gz", 1, {filter =>
qr/\.pm$/} );
while( my $f = $next->() ) {
    print $f->name, "\n";
    $f->extract or warn "Extraction failed";
    # ....
}
```

Archive::Tar->list_archive(\$file, \$compressed, [\@properties])

Returns a list of the names of all the files in the archive. The first argument can either be the name of the tar file to list or a reference to an open file handle (e.g. a GLOB reference).

If list_archive() is passed an array reference as its third argument it returns a list of hash references containing the requested properties of each file. The following list of properties is supported: full_path, name, size, mtime (last modified date), mode, uid, gid, linkname, uname, gname, devmajor, devminor, prefix.

See Archive::Tar::File for details about supported properties.

Passing an array reference containing only one element, 'name', is special cased to return a list of names rather than a list of hash references.

Archive::Tar->extract_archive(\$file, \$compressed)

Extracts the contents of the tar file. The first argument can either be the name of the tar file to create or a reference to an open file handle (e.g. a GLOB reference). All relative paths in the tar file will be created underneath the current working directory.

extract_archive will return a list of files it extracted. If the archive extraction fails for any reason, extract_archive will return false. Please use the error method to find the cause of the failure.

\$bool = Archive::Tar->has_io_string

Returns true if we currently have IO::String support loaded.

Either IO::String or perlio support is needed to support writing stringified archives. Currently, perlio is the preferred method, if available.



See the GLOBAL VARIABLES section to see how to change this preference.

\$bool = Archive::Tar->has_perlio

Returns true if we currently have perlio support loaded.

This requires per1-5.8 or higher, compiled with perlio

Either IO::String or perlio support is needed to support writing stringified archives. Currently, perlio is the preferred method, if available.

See the GLOBAL VARIABLES section to see how to change this preference.

\$bool = Archive::Tar->has_zlib_support

Returns true if Archive::Tar can extract zlib compressed archives

\$bool = Archive::Tar->has_bzip2_support

Returns true if Archive::Tar can extract bzip2 compressed archives

Archive::Tar->can_handle_compressed_files

A simple checking routine, which will return true if Archive::Tar is able to uncompress compressed archives on the fly with IO::Zlib and IO::Compress::Bzip2 or false if not both are installed.

You can use this as a shortcut to determine whether Archive::Tar will do what you think before passing compressed archives to its read method.

GLOBAL VARIABLES

\$Archive::Tar::FOLLOW_SYMLINK

Set this variable to 1 to make Archive::Tar effectively make a copy of the file when extracting. Default is 0, which means the symlink stays intact. Of course, you will have to pack the file linked to as well.

This option is checked when you write out the tarfile using write or create_archive.

This works just like /bin/tar's -h option.

\$Archive::Tar::CHOWN

By default, Archive::Tar will try to chown your files if it is able to. In some cases, this may not be desired. In that case, set this variable to 0 to disable chown-ing, even if it were possible.

The default is 1.

\$Archive::Tar::CHMOD

By default, Archive::Tar will try to chmod your files to whatever mode was specified for the particular file in the archive. In some cases, this may not be desired. In that case, set this variable to 0 to disable chmod-ing.

The default is 1.

\$Archive::Tar::SAME_PERMISSIONS

When, *SArchive::Tar::CHMOD* is enabled, this setting controls whether the permissions on files from the archive are used without modification of if they are filtered by removing any setid bits and applying the current umask.

The default is 1 for the root user and 0 for normal users.

\$Archive::Tar::DO_NOT_USE_PREFIX

By default, Archive::Tar will try to put paths that are over 100 characters in the prefix field of your tar header, as defined per POSIX-standard. However, some (older) tar programs do not implement this spec. To retain compatibility with these older or non-POSIX compliant versions, you



can set the <code>\$DO_NOT_USE_PREFIX</code> variable to a true value, and <code>Archive::Tar</code> will use an alternate way of dealing with paths over 100 characters by using the <code>GNU Extended Header</code> feature.

Note that clients who do not support the GNU Extended Header feature will not be able to read these archives. Such clients include tars on Solaris, Irix and AIX.

The default is 0.

\$Archive::Tar::DEBUG

Set this variable to 1 to always get the Carp::longmess output of the warnings, instead of the regular carp. This is the same message you would get by doing:

\$tar->error(1);

Defaults to 0.

\$Archive::Tar::WARN

Set this variable to 0 if you do not want any warnings printed. Personally I recommend against doing this, but people asked for the option. Also, be advised that this is of course not threadsafe.

Defaults to 1.

\$Archive::Tar::error

Holds the last reported error. Kept for historical reasons, but its use is very much discouraged. Use the error() method instead:

```
warn $tar->error unless $tar->extract;
```

Note that in older versions of this module, the error() method would return an effectively global value even when called an instance method as above. This has since been fixed, and multiple instances of Archive::Tar now have separate error strings.

\$Archive::Tar::INSECURE_EXTRACT_MODE

This variable indicates whether Archive::Tar should allow files to be extracted outside their current working directory.

Allowing this could have security implications, as a malicious tar archive could alter or replace any file the extracting user has permissions to. Therefor, the default is to not allow insecure extractions.

If you trust the archive, or have other reasons to allow the archive to write files outside your current working directory, set this variable to true.

Note that this is a backwards incompatible change from version 1.36 and before.

\$Archive::Tar::HAS_PERLIO

This variable holds a boolean indicating if we currently have perlio support loaded. This will be enabled for any perl greater than 5.8 compiled with perlio.

If you feel strongly about disabling it, set this variable to false. Note that you will then need IO::String installed to support writing stringified archives.

Don't change this variable unless you really know what you're doing.

\$Archive::Tar::HAS_IO_STRING

This variable holds a boolean indicating if we currently have IO::String support loaded. This will be enabled for any perl that has a loadable IO::String module.

If you feel strongly about disabling it, set this variable to false. Note that you will then need perlio



support from your perl to be able to write stringified archives.

Don't change this variable unless you really know what you're doing.

\$Archive::Tar::ZERO_PAD_NUMBERS

This variable holds a boolean indicating if we will create zero padded numbers for size, mtime and checksum. The default is 0, indicating that we will create space padded numbers. Added for compatibility with busybox implementations.

FAQ

What's the minimum perl version required to run Archive::Tar?

You will need perl version 5.005_03 or newer.

Isn't Archive::Tar slow?

Yes it is. It's pure perl, so it's a lot slower then your /bin/tar However, it's very portable. If speed is an issue, consider using /bin/tar instead.

Isn't Archive::Tar heavier on memory than /bin/tar?

Yes it is, see previous answer. Since Compress::Zlib and therefore IO::Zlib doesn't support seek on their filehandles, there is little choice but to read the archive into memory. This is ok if you want to do in-memory manipulation of the archive.

If you just want to extract, use the <code>extract_archive</code> class method instead. It will optimize and write to disk immediately.

Another option is to use the *iter* class method to iterate over the files in the tarball without reading them all in memory at once.

Can you lazy-load data instead?

In some cases, yes. You can use the *iter* class method to iterate over the files in the tarball without reading them all in memory at once.

How much memory will an X kb tar file need?

Probably more than X kb, since it will all be read into memory. If this is a problem, and you don't need to do in memory manipulation of the archive, consider using the *iter* class method, or /bin/tar instead.

What do you do with unsupported filetypes in an archive?

Unix has a few filetypes that aren't supported on other platforms, like Win32. If we encounter a hardlink or symlink we'll just try to make a copy of the original file, rather than throwing an error.

This does require you to read the entire archive in to memory first, since otherwise we wouldn't know what data to fill the copy with. (This means that you cannot use the class methods, including *iter* on archives that have incompatible filetypes and still expect things to work).

For other filetypes, like chardevs and blockdevs we'll warn that the extraction of this particular item didn't work.

I'm using WinZip, or some other non-POSIX client, and files are not being extracted properly!

By default, Archive::Tar is in a completely POSIX-compatible mode, which uses the POSIX-specification of tar to store files. For paths greater than 100 characters, this is done using the POSIX header prefix. Non-POSIX-compatible clients may not support this part of the specification, and may only support the GNU Extended Header functionality. To facilitate those clients, you can set the \$Archive::Tar::DO_NOT_USE_PREFIX variable to true. See the GLOBAL VARIABLES section for details on this variable.

Note that GNU tar earlier than version 1.14 does not cope well with the POSIX header



prefix. If you use such a version, consider setting the
\$Archive::Tar::DO_NOT_USE_PREFIX variable to true.

How do I extract only files that have property X from an archive?

Sometimes, you might not wish to extract a complete archive, just the files that are relevant to you, based on some criteria.

You can do this by filtering a list of Archive::Tar::File objects based on your criteria. For example, to extract only files that have the string foo in their title, you would use:

```
$tar->extract(
    grep { $_->full_path =~ /foo/ } $tar->get_files
);
```

This way, you can filter on any attribute of the files in the archive. Consult the Archive::Tar::File documentation on how to use these objects.

How do I access .tar.Z files?

The Archive::Tar module can optionally use Compress::Zlib (via the IO::Zlib module) to access tar files that have been compressed with gzip. Unfortunately tar files compressed with the Unix compress utility cannot be read by Compress::Zlib and so cannot be directly accesses by Archive::Tar.

If the uncompress or gunzip programs are available, you can use one of these workarounds to read .tar.Z files from Archive::Tar

Firstly with uncompress

```
use Archive::Tar;
```

```
open F, "uncompress -c $filename |";
my $tar = Archive::Tar->new(*F);
...
```

and this with gunzip

```
use Archive::Tar;
```

```
open F, "gunzip -c $filename |";
my $tar = Archive::Tar->new(*F);
...
```

Similarly, if the compress program is available, you can use this to write a .tar.Z file

```
use Archive::Tar;
use IO::File;
my $fh = new IO::File "| compress -c >$filename";
my $tar = Archive::Tar->new();
...
$tar->write($fh);
$fh->close ;
```

How do I handle Unicode strings?

Archive::Tar uses byte semantics for any files it reads from or writes to disk. This is not a problem if you only deal with files and never look at their content or work solely with byte strings. But if you use Unicode strings with character semantics, some additional steps need to be taken.

For example, if you add a Unicode string like



```
# Problem
$tar->add_data('file.txt', "Euro: \x{20AC}");
```

then there will be a problem later when the tarfile gets written out to disk via star-write()>:

```
Wide character in print at .../Archive/Tar.pm line 1014.
```

The data was added as a Unicode string and when writing it out to disk, the :utf8 line discipline wasn't set by Archive::Tar, so Perl tried to convert the string to ISO-8859 and failed. The written file now contains garbage.

For this reason, Unicode strings need to be converted to UTF-8-encoded bytestrings before they are handed off to add_data():

```
use Encode;
my $data = "Accented character: \x{20AC}";
$data = encode('utf8', $data);
$tar->add_data('file.txt', $data);
```

A opposite problem occurs if you extract a UTF8-encoded file from a tarball. Using get_content() on the Archive::Tar::File object will return its content as a bytestring, not as a Unicode string.

If you want it to be a Unicode string (because you want character semantics with operations like regular expression matching), you need to decode the UTF8-encoded content and have Perl convert it into a Unicode string:

```
use Encode;
my $data = $tar->get_content();
# Make it a Unicode string
$data = decode('utf8', $data);
```

There is no easy way to provide this functionality in Archive::Tar, because a tarball can contain many files, and each of which could be encoded in a different way.

CAVEATS

The AIX tar does not fill all unused space in the tar archive with 0x00. This sometimes leads to warning messages from Archive::Tar.

Invalid header block at offset nnn

A fix for that problem is scheduled to be released in the following levels of AIX, all of which should be coming out in the 4th quarter of 2009:

AIX 5.3 TL7 SP10 AIX 5.3 TL8 SP8 AIX 5.3 TL9 SP5 AIX 5.3 TL10 SP2 AIX 6.1 TL0 SP11 AIX 6.1 TL1 SP7 AIX 6.1 TL2 SP6 AIX 6.1 TL3 SP3

The IBM APAR number for this problem is IZ50240 (Reported component ID: 5765G0300 / AIX 5.3). It is possible to get an ifix for that problem. If you need an ifix please contact your local IBM AIX support.



Check if passed in handles are open for read/write

Currently I don't know of any portable pure perl way to do this. Suggestions welcome.

Allow archives to be passed in as string

Currently, we only allow opened filehandles or filenames, but not strings. The internals would need some reworking to facilitate stringified archives.

Facilitate processing an opened filehandle of a compressed archive

Currently, we only support this if the filehandle is an IO::Zlib object. Environments, like apache, will present you with an opened filehandle to an uploaded file, which might be a compressed archive.

SEE ALSO

The GNU tar specification

http://www.gnu.org/software/tar/manual/tar.html

The PAX format specification

The specification which tar derives from; http://www.opengroup.org/onlinepubs/007904975/utilities/pax.html

A comparison of GNU and POSIX tar standards;

http://www.delorie.com/gnu/docs/tar/tar_114.html

GNU tar intends to switch to POSIX compatibility

GNU Tar authors have expressed their intention to become completely POSIX-compatible; http://www.gnu.org/software/tar/manual/html_node/Formats.html

A Comparison between various tar implementations

Lists known issues and incompatibilities; http://gd.tuwien.ac.at/utils/archivers/star/README.otherbugs

AUTHOR

This module by Jos Boumans <kane@cpan.org>.

Please reports bugs to <bug-archive-tar@rt.cpan.org>.

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