

Tar Command Tutorial with Practical Examples

Internal reference: topics/05-6.md

Introduction

On Unix platform, `tar` command is the primary archiving utility. Understanding various `tar` command options will help you master the archive file manipulation.

In this article, let us review various `tar` examples including how to create `tar` archives (with `gzip` and `bzip` compression), extract a single file or directory, view `tar` archive contents, validate the integrity of `tar` archives, finding out the difference between `tar` archive and file system, estimate the size of the `tar` archives before creating it etc.,

Creating an archive using tar command

Creating an uncompressed tar archive

This is the basic command to create a `tar` archive.

```
$ tar cvf archive_name.tar dirname/
```

In the above command:

1. `c` - create a new archive
2. `v` - verbosely list files which are processed.
3. `f` - following is the archive file name

Creating a tar gzipped archive

The above `tar cvf` option, does not provide any compression. To use a `gzip` compression on the `tar` archive, use the `z` option as shown below.

```
# z - filter the archive through gzip
$ tar cvzf archive_name.tar.gz dirname/
```

Note: `.tgz` is same as `.tar.gz`

Note: I like to keep the `cvf` (or `tvf` or `xvf`) option unchanged for all archive creation (or view, or extract) and add additional option at the end, which is easier to remember. I.e `cvf` for archive

creation, cvfz for compressed gzip archive creation, cvfj for compressed bzip2 archive creation etc., For this method to work properly, don't give - in front of the options.

Extracting (untar) an archive

Extract a .tar file using option xvf

Extract a tar file using option x as shown below:

```
# x – extract files from archive
$ tar xvf archive_name.tar
```

Extract a gzipped tar archive (.tar.gz)

Use the option z for uncompressing a gzip tar archive.

```
# using option xvzf
$ tar xvzf archive_name.tar.gz
```

Extracting a bziped tar archive (.tar.bz2)

Use the option j for uncompressing a bzip2 tar archive.

```
# using option xvjf
$ tar xvjf archive_name.tar.bz2
```

Note: In all the above commands v is optional, which lists the file being processed.

Listing an archive

View the tar archive file content without extracting using option tvf

You can view the .tar file content before extracting as shown below.

```
$ tar tvf archive_name.tar
```

View the .tar.gz file content without extracting using option tvzf

You can view the .tar.gz file content before extracting as shown below.

```
$ tar tvfz archive_name.tar.gz
```

Extract a single file from tar, tar.gz file

To extract a specific file from a tar archive, specify the file name at the end of the tar xvf command as shown below. The following command extracts only a specific file from a large tar file.

```
$ tar xvf archive_file.tar /path/to/file
```

Use the relevant option z or j according to the compression method gzip or bzip2 respectively as shown below.

```
$ tar xvfz archive_file.tar.gz /path/to/file
```

Extract a single directory from tar, tar.gz file

To extract a single directory (along with its subdirectory and files) from a tar archive, specify the directory name at the end of the tar xvf command as shown below. The following extracts only a specific directory from a large tar file.

```
$ tar xvf archive_file.tar /path/to/dir/
```

To extract multiple directories from a tar archive, specify those individual directory names at the end of the tar xvf command as shown below.

```
$ tar xvf archive_file.tar /path/to/dir1/ /path/to/dir2/
```

Use the relevant option z or j according to the compression method gzip or bzip2 respectively as shown below.

```
$ tar xvfz archive_file.tar.gz /path/to/dir/
```

Extract group of files from tar, tar.gz, tar.bz2 archives using regular expression

You can specify a regex, to extract files matching a specified pattern. For example, following tar command extracts all the files with pl extension.

```
# wildcards *.pl – files with pl extension
$ tar xvf archive_file.tar --wildcards '*.pl'
```

Adding a file or directory to an existing archive using option -r

You can add additional files to an existing tar archive as shown below. For example, to append a file to *.tar file do the following:

```
$ tar rvf archive_name.tar newfile
```

This newfile will be added to the existing archive_name.tar. Adding a directory to the tar is also similar,

```
$ tar rvf archive_name.tar newdir/
```

Note: You cannot add file or directory to a compressed archive. If you try to do so, you will get “tar: Cannot update compressed archives” error as shown below.

```
$ tar rvfz archive_name.tgz newfile
tar: Cannot update compressed archives
Try 'tar --help' or 'tar --usage' for more information.
```

Verify files available in tar using option -W

As part of creating a tar file, you can verify the archive file that got created using the option W as shown below.

```
$ tar cvfW file_name.tar dir/
```

If you are planning to remove a directory/file from an archive file or from the file system, you might want to verify the archive file before doing it as shown below.

```
$ tar tvfW file_name.tar
Verify 1/file1
1/file1: Mod time differs
1/file1: Size differs
Verify 1/file2
```

Verify 1/file3

If an output line starts with Verify, and there is no differs line then the file/directory is Ok. If not, you should investigate the issue.

Note: for a compressed archive file (.tar.gz, .tar.bz2) you cannot do the verification.

Finding the difference between an archive and file system can be done even for a compressed archive. It also shows the same output as above excluding the lines with Verify.

Finding the difference between gzip archive file and file system

```
$ tar dfz file_name.tgz
```

Finding the difference between bzip2 archive file and file system

```
$ tar dfj file_name.tar.bz2
```

Estimate the tar archive size

The following command, estimates the tar file size (in KB) before you create the tar file.

```
$ tar -cf - /directory/to/archive/ | wc -c  
20480
```

The following command, estimates the compressed tar file size (in KB) before you create the tar.gz, tar.bz2 files.

```
$ tar -czf - /directory/to/archive/ | wc -c  
508  
  
$ tar -cjf - /directory/to/archive/ | wc -c  
428
```

Based on: „<https://www.thegeekstuff.com/2010/04/unix-tar-command-examples/>“



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