Extracting files and folders from an archive

The following command extracts the contents of the archive to the current directory:

```
$ tar -xf archive.tar
```

The `-x` option stands for extract.

When `-x` is used, the `tar` command extracts the contents of the archive to the current directory. We can also specify the directory where the files need to be extracted by using the `-C` flag, as follows:

```
$ tar -xf archive.tar -C /path/to/extraction_directory
```

The command extracts the contents of an archive to a specified directory. It extracts the entire contents of the archive. We can also extract only a few files by specifying them as command arguments:

```
$ tar -xvf file.tar file1 file4
```

The command above extracts only `file1` and `file4,` and ignores other files in the archive.

stdin and stdout with tar

While archiving, we can specify `stdout` as the output file so that another command appearing through a pipe can read it as `stdin` and then do some process or extract the archive.

This is very helpful in order to transfer data through a Secure Shell (SSH) connection (while on a network). For example:

```
$ tar cvf - files/ | ssh user@example.com "tar xv -C Documents/"
```

In the preceding example, the directory files/ is added to a tar archive which is output to stdout (denoted by '-')

Concatenating two archives

We can easily merge multiple tar files with the `-A` option.

Let's pretend we have two tarballs: `file1.tar` and `file2.tar`. We can merge the contents of `file2.tar` to `file1.tar` as follows:

```
$ tar -Af file1.tar file2.tar
```

Verify it by listing the contents:

```
$ tar -tvf file1.tar
```

Updating files in an archive with a timestamp check

The append option appends any given file to the archive. If the same file is inside the archive is given to append, it will append that file and the archive will contain duplicates. We can use the update option `-u` to specify only append files that are newer than the file inside the archive with the same name.

```
$ tar -tf archive.tar
filea
fileb
filec
```

This command lists the files in the archive.

To append `filea` only if `filea` has been modified since the last time it was added to `archive.tar`, use:

```
$ tar -uf archive.tar filea
```

Nothing happens if the version of `filea` outside the archive and the `filea` inside `archive. tar` have the same timestamp.

Use the `touch` command to modify the file timestamp and then try the `tar` command again:

```
$ tar -uvvf archive.tar filea
-rw-r--r-- slynux/slynux     0 2010-08-14 17:53 filea
```

The file is appended since its timestamp is newer than the one inside the archive. Let's verify that:

```
$ tar -tf archive.tar
-rw-r--r-- slynux/slynux     0 2010-08-14 17:52 filea

-rw-r--r-- slynux/slynux     0 2010-08-14 17:52 fileb

-rw-r--r-- slynux/slynux     0 2010-08-14 17:52 filec

-rw-r--r-- slynux/slynux     0 2010-08-14 17:53 filea
```

As you can notice, a new `filea` has been appended to the `tar` archive. While extracting this archive, tar will pick up the latest version of `filea`.