tar Archive files

START HERE

tar -czf *<out.tar.gz> <path>*
Pack and gzip

tar -xf *<archive> <member>*
Extract one file

tar -xf *<archive>*
Unpack here

tar -cJf *<out.tar.xz> <path>*
Pack with xz

tar -tf *<archive>*
List contents

tar -czf *<out.tar.gz>* **--exclude=***<pat> <path>*
Skip files

tar -xf *<archive>* **-C** *<dir>*
Unpack elsewhere

tar -tvf *<archive>*
Verbose listing

Files on disk → **tar -c** → **Archive** .tar → **-z / -j / -J** → **Compressed** .tar.gz .bz2 .xz → **tar -x** → **Files** restored

CONCEPTS

Exactly one mode letter is needed: c create, x extract, t list. -f <file> names the archive and must be followed by it.

Reading an archive, GNU tar detects the compression itself, so -xf works for .gz, .bz2 and .xz alike.

Archives store the paths you gave. Pack with relative paths and use -C to control where things land.

This sheet covers GNU tar 1.35. macOS and BSD ship bsdtar, which lacks some options here (--sort, --one-top-level, --exclude-vcs-ignores).

CREATE

tar -cf *<out.tar> <path>*...
Create an archive

tar -czf *<out.tar.gz> <path>*...
Create gzip archive

tar -cjf *<out.tar.bz2> <path>*...
Create bzip2 archive

tar -cJf *<out.tar.xz> <path>*...
Create xz archive

tar --zstd -cf *<out.tar.zst> <path>*...
Create zstd archive
Needs the zstd program installed.

tar -czvf *<out.tar.gz> <path>*
Create, list files as added

tar -czf *<out.tar.gz>* **-C** *<dir> .*
Pack a dir's contents, no prefix

tar -rf *<out.tar> <path>*
Append to an uncompressed archive
Does not work on compressed archives.

tar -uf *<out.tar> <path>*
Append only newer files

CREATE (cont.)

tar -cf - <path> | gzip > <out.tar.gz>
Write the archive to stdout

EXTRACT

tar -xf *<archive>*
Extract everything

tar -xf *<archive>* **-C** *<dir>*
Extract into a directory
The directory must already exist.

tar -xzf *<archive>*
Extract, forcing gzip

tar -xf *<archive> <member>*...
Extract named members only

tar -xf *<archive>* **--wildcards '*.conf'**
Extract members by pattern

tar -xf *<archive>* **--strip-components=1**
Drop leading path levels

tar -xvf *<archive>*
Extract and show names

tar -xf *<archive>* **--keep-old-files**
Never overwrite existing files

tar -xf *<archive>* **--one-top-level**
Extract into a dir named after archive

tar -xpf *<archive>*
Keep permissions as stored
Permissions are kept by default only when running as root.

tar -xf *<archive>* **-O** *<member>*
Print one member to stdout

LIST AND CHECK

tar -tf *<archive>*
List member names

tar -tvf *<archive>*
List with size, owner, date

tar -tf *<archive>* **| grep** *<pat>*
Find a file in an archive

tar -df *<archive>*
Compare archive with disk

tar -tf *<archive>* **| head**
Peek at the first entries

SELECT FILES

--exclude=*<pattern>*
Skip matching names
Put it before the paths to archive; quote the pattern.

--exclude-from=*<file>*
Read exclude patterns from file

--exclude-vcs
Skip .git, .svn and similar

--exclude-vcs-ignores
Honour .gitignore-style files

--exclude-caches
Skip dirs tagged CACHEDIR.TAG

-C *<dir>*
Change directory first
Applies to the names after it, so it can appear several times.

-T *<file>*
Read paths from a file

--null -T *<file>*
Read NUL-separated paths

--no-recursion
Do not descend into dirs

--newer=*<date>*
Only files changed after a date

--one-file-system
Stay on one filesystem

COMPRESSION

-z / --gzip
Filter through gzip

-j / --bzip2
Filter through bzip2

-J / --xz
Filter through xz

--zstd
Filter through zstd

-a / --auto-compress
Pick compressor from the suffix
Used when creating: -caf out.tar.xz picks xz.

-I '*<prog>* **-9'**
Use a custom compress program

--use-compress-program=*<prog>*
Same, long form

METADATA AND SAFETY

--numeric-owner
Store uid/gid numbers, not names

--owner=*<name>* **--group=***<name>*
Force ownership in archive

--same-owner
Restore ownership on extract

--xattrs --acls
Keep extended attributes and ACLs

--mtime=*<date>*
Set all times, for reproducible archives

--sort=name
Stable member order

-h / --dereference
Archive link targets, not links

-P / --absolute-names
Keep leading / in names
Risky; by default tar strips the leading slash.

--remove-files
Delete sources after archiving

-S / --sparse
Store sparse files compactly

--checkpoint=*<n>* **--checkpoint-action=dot**
Show progress dots

RECIPES

Backup a project, skipping junk

```
tar -czf proj.tar.gz \
  --exclude-vcs --
exclude='node_modules' \
  -C ~/code proj
```

Copy a tree over ssh

```
tar -cf - -C <src> . | ssh
<host> 'tar -xf - -C <dst>'
# no temporary archive on
either side
```

Pull one file out of a big archive

```
tar -tf big.tar.gz | grep
app.conf
tar -xzf big.tar.gz path/to/
app.conf -C /tmp
```

Unpack a release tarball flat

```
tar -xzf app-1.2.tar.gz --
strip-components=1 -C /opt/app
```