

# Learning Objectives

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After completing this lab, you will be able to:

- Create archives for sets of files and folders
- Compress and decompress files
- Extract files and folders from an existing archive

## Exercise 1 - File and folder archiving and compression

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The **tar** command allows you to pack multiple files and directories into a single archive file. writes the archive to a single file named **bin.tar**.

The options used are as follows:

Option	Description
-c	Create new archive file
-v	Verbosely list files processed
-f	Archive file name

To see the list of files in the archive, use the **-t** option:

```
theia@theia-rajendraabro:/home/project$ tar -tvf bin.tar
lrwxrwxrwx root/root      0 2025-09-30 22:03 bin -> usr/bin
```

To untar the archive or extract files from the archive, use the **-x** option:

```
theia@theia-rajendraabro:/home/project$ tar -xvf bin.tar
bin
```

```
theia@theia-rajendraabro:/home/project$ ls -l
total 32
lrwxrwxrwx 1 theia users 7 Sep 30 22:03 bin -> usr/bin
-rw-r--r-- 1 theia users 10240 Dec 24 11:49 bin.tar
drw-r-sr-x 2 theia users 4096 Dec 24 11:29 test
-rw-r----- 1 theia users 8121 Sep 28 2022 usdoi.txt
-rw-r--r-- 1 theia users 8121 Sep 28 2022 usdoi.txt.1
```

## 1.2. Package and compress archive files

The `zip` command allows you to compress files.

The following command creates a zip file named `config.zip` consisting of all the files with extension `.conf` in the `/etc` directory.

```
theia@theia-rajendraabro:/home/project$ zip config.zip /etc/*.conf
adding: etc/adduser.conf (deflated 55%)
adding: etc/ca-certificates.conf (deflated 76%)
adding: etc/debconf.conf (deflated 56%)
adding: etc/deluser.conf (deflated 40%)
adding: etc/e2scrub.conf (deflated 49%)
adding: etc/gai.conf (deflated 57%)
adding: etc/host.conf (deflated 13%)
adding: etc/ld.so.conf (deflated 6%)
adding: etc/libaudit.conf (deflated 34%)
adding: etc/mke2fs.conf (deflated 55%)
adding: etc/mongod.conf (deflated 39%)
adding: etc/nsswitch.conf (deflated 50%)
adding: etc/pam.conf (deflated 62%)
adding: etc/resolv.conf (deflated 26%)
adding: etc/sensors3.conf (deflated 82%)
adding: etc/sudo.conf (deflated 63%)
adding: etc/sudo_logsrvd.conf (deflated 69%)
adding: etc/sysctl.conf (deflated 60%)
adding: etc/ucf.conf (deflated 61%)
adding: etc/xattr.conf (deflated 55%)
```

The `-r` option can be used to zip an entire directory.

The `-y` flag to prevent symbolic links from being followed recursively

```
theia@theia-rajendraabro:/home/project$ zip -ry bin.zip /bin
adding: bin (stored 0%)
```

## 1.3. Extract, list, or test compressed files in a ZIP archive

The `unzip` command allows you to extract files.

To list the files of the archive `config.zip`

```
theia@theia-rajendraabro:/home/project$ unzip -l config.zip
```

Archive: config.zip

Length	Date	Time	Name
3028	2025-09-30	22:03	etc/adduser.conf
6288	2025-11-03	17:04	etc/ca-certificates.conf
2969	2022-02-20	09:42	etc/debconf.conf
604	2018-09-15	18:14	etc/deluser.conf
685	2022-01-08	15:02	etc/e2scrub.conf
2584	2022-02-03	00:27	etc/gai.conf
92	2021-10-15	06:06	etc/host.conf
34	2020-12-16	06:04	etc/ld.so.conf
191	2022-03-17	13:50	etc/libaudit.conf
744	2022-01-08	15:02	etc/mke2fs.conf
586	2013-12-19	00:41	etc/mongod.conf
510	2025-11-03	17:04	etc/nsswitch.conf
552	2020-08-11	20:15	etc/pam.conf
104	2025-12-24	10:54	etc/resolv.conf
10593	2022-03-31	17:07	etc/sensors3.conf
4573	2025-06-25	08:48	etc/sudo.conf
9390	2025-06-25	08:48	etc/sudo_logsrvd.conf
2355	2022-02-25	06:32	etc/sysctl.conf
1260	2020-06-16	01:37	etc/ucf.conf
681	2022-03-23	05:41	etc/xattr.conf
47823			20 files

**command extracts all the files in the archive bin.zip.**

```
theia@theia-rajendraabro:/home/project$ unzip -o bin.zip
```

```
Archive: bin.zip
```

```
  linking: bin                -> usr/bin
```

```
finishing deferred symbolic links:
```

```
  bin                        -> usr/bin
```

We added the `-o` option to force overwrite in case you run the command more than once.