

# 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.