Archiving and Compression

tar -cf backup.tar /home/user/documents

```
root@ICPL14580:/home# tar -cf backup.tar sampledir2
root@ICPL14580:/home# ls -l
total 72
-rw-r--r-- 1 root root 10240 Dec 17 06:48 backup.tar
drwxr-xr-x 1 root root  4096 Dec 17 06:08 dir3
-rw-r--r-- 1 root root 17581 Dec 12 05:30 employee_test_data.csv
-rwxrwxr-- 1 root root   155 Oct 19 09:55 ifelsescript.sh
-rw-r--r-- 1 root root     0 Dec 17 06:24 imp1.txt
-rw-r--r-- 1 root root     0 Dec 17 06:24 imp2.txt
drwxr-xr-x 1 root root  4096 Dec 17 05:44 log
drwxr-xr-x 1 root root  4096 Dec 17 05:49 myfolder
-rwxrwxrwx 1 root root    95 Oct 19 08:45 myscript.sh
drwxr-xr-x 1 root root  4096 Dec 17 06:06 new_dir
-rw-r--r-- 1 root root     0 Oct 19 07:56 sample1.txt
-rw-r--r-- 1 root root   122 Oct 18 12:48 sample2.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample3.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample4.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample5.txt
-rw-r--r-- 1 root root     0 Oct 19 06:45 sample6.txt
-rw-r--r-- 1 root root     0 Oct 19 06:45 sample7.txt
drwxr-xr-x 1 root root  4096 Dec 17 05:30 sampledir
drwxrwxrwx 1 root root  4096 Dec 17 05:27 sampledir2
drwxr-xr-x 1 root root  4096 Dec 17 05:27 sampledir3
-rw-r--r-- 1 root root 16475 Dec 12 05:19 test_data
-rw-r--r-- 1 root root     1 Dec 12 05:17 test_data.csv
-rw-r--r-- 1 root root 16473 Dec 12 05:22 test_data1.csv
root@ICPL14580:/home#
```

tar -xf backup.tar

```
root@ICPL14580:/# cd root
root@ICPL14580:~# ls -l
total 12
-rwxr-xr-x 1 root root 8439 Dec 12 05:11 employee_test_data.csv
lrwxrwxrwx 1 root root    9 Dec 17 05:48 mylink -> /root/log
lrwxrwxrwx 1 root root   14 Dec 17 05:50 mylink1 -> /root/myfolder
drwxr-xr-x 1 root root 4096 Dec 17 06:05 new_dir
drwxr-xr-x 1 root root 4096 Dec 17 06:00 path
drwxr-xr-x 1 root root 4096 Dec 17 06:04 sampledir
lrwxrwxrwx 1 root root   18 Dec 17 05:45 syslog_link -> /log/samplelog.txt
root@ICPL14580:~# tar -xf /home/backup.tar
root@ICPL14580:~# ls -l
total 12
-rwxr-xr-x 1 root root 8439 Dec 12 05:11 employee_test_data.csv
lrwxrwxrwx 1 root root    9 Dec 17 05:48 mylink -> /root/log
lrwxrwxrwx 1 root root   14 Dec 17 05:50 mylink1 -> /root/myfolder
drwxr-xr-x 1 root root 4096 Dec 17 06:05 new_dir
drwxr-xr-x 1 root root 4096 Dec 17 06:00 path
drwxr-xr-x 1 root root 4096 Dec 17 06:04 sampledir
drwxrwxrwx 1 root root 4096 Dec 17 05:27 sampledir2
lrwxrwxrwx 1 root root   18 Dec 17 05:45 syslog_link -> /log/samplelog.txt
root@ICPL14580:~# cd sampledir2
root@ICPL14580:~/sampledir2# ls -l
total 0
-rw-r--r-- 1 root root 0 Dec 17 05:27 empty
-rw-r--r-- 1 root root 0 Dec 17 05:27 empty1
-rw-r--r-- 1 root root 0 Dec 17 05:27 empty2
-rw-r--r-- 1 root root 0 Dec 17 05:27 empty4
root@ICPL14580:~/sampledir2#
```

gzip file.txt

```
root@ICPL14580:/home# gzip imp1.txt
root@ICPL14580:/home# ls -l
total 72
-rw-r--r-- 1 root root 10240 Dec 17 06:48 backup.tar
drwxr-xr-x 1 root root  4096 Dec 17 06:08 dir3
-rw-r--r-- 1 root root 17581 Dec 12 05:30 employee_test_data.csv
-rwxrwxr-- 1 root root   155 Oct 19 09:55 ifelsescript.sh
-rw-r--r-- 1 root root    29 Dec 17 06:24 imp1.txt.gz
-rw-r--r-- 1 root root     0 Dec 17 06:24 imp2.txt
drwxr-xr-x 1 root root  4096 Dec 17 05:44 log
drwxr-xr-x 1 root root  4096 Dec 17 05:49 myfolder
-rwxrwxrwx 1 root root    95 Oct 19 08:45 myscript.sh
drwxr-xr-x 1 root root  4096 Dec 17 06:06 new_dir
-rw-r--r-- 1 root root     0 Oct 19 07:56 sample1.txt
-rw-r--r-- 1 root root   122 Oct 18 12:48 sample2.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample3.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample4.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample5.txt
-rw-r--r-- 1 root root     0 Oct 19 06:45 sample6.txt
-rw-r--r-- 1 root root     0 Oct 19 06:45 sample7.txt
drwxr-xr-x 1 root root  4096 Dec 17 05:30 sampledir
drwxrwxrwx 1 root root  4096 Dec 17 05:27 sampledir2
drwxr-xr-x 1 root root  4096 Dec 17 05:27 sampledir3
-rw-r--r-- 1 root root 16475 Dec 12 05:19 test_data
-rw-r--r-- 1 root root     1 Dec 12 05:17 test_data.csv
-rw-r--r-- 1 root root 16473 Dec 12 05:22 test_data1.csv
```

gunzip file.txt.gz

```
drwxr-xr-x 1 root root  4096 Dec 17 06:06 new_dir
-rw-r--r-- 1 root root     0 Oct 19 07:56 sample1.txt
-rw-r--r-- 1 root root   122 Oct 18 12:48 sample2.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample3.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample4.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample5.txt
-rw-r--r-- 1 root root     0 Oct 19 06:45 sample6.txt
-rw-r--r-- 1 root root     0 Oct 19 06:45 sample7.txt
drwxr-xr-x 1 root root  4096 Dec 17 05:30 sampledir
drwxrwxrwx 1 root root  4096 Dec 17 05:27 sampledir2
drwxr-xr-x 1 root root  4096 Dec 17 05:27 sampledir3
-rw-r--r-- 1 root root 16475 Dec 12 05:19 test_data
-rw-r--r-- 1 root root     1 Dec 12 05:17 test_data.csv
-rw-r--r-- 1 root root 16473 Dec 12 05:22 test_data1.csv
root@ICPL14580:/home# gunzip imp1.txt.gz
root@ICPL14580:/home# ls -l
total 72
-rw-r--r-- 1 root root 10240 Dec 17 06:48 backup.tar
drwxr-xr-x 1 root root  4096 Dec 17 06:08 dir3
-rw-r--r-- 1 root root 17581 Dec 12 05:30 employee_test_data.csv
-rwxrwxr-- 1 root root   155 Oct 19 09:55 ifelsescript.sh
-rw-r--r-- 1 root root     0 Dec 17 06:24 imp1.txt
-rw-r--r-- 1 root root     0 Dec 17 06:24 imp2.txt
drwxr-xr-x 1 root root  4096 Dec 17 05:44 log
drwxr-xr-x 1 root root  4096 Dec 17 05:49 myfolder
-rwxrwxrwx 1 root root    95 Oct 19 08:45 myscript.sh
drwxr-xr-x 1 root root  4096 Dec 17 06:06 new_dir
-rw-r--r-- 1 root root     0 Oct 19 07:56 sample1.txt
-rw-r--r-- 1 root root   122 Oct 18 12:48 sample2.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample3.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample4.txt
-rw-r--r-- 1 root root     0 Oct 19 06:44 sample5.txt
-rw-r--r-- 1 root root     0 Oct 19 06:45 sample6.txt
-rw-r--r-- 1 root root     0 Oct 19 06:45 sample7.txt
drwxr-xr-x 1 root root  4096 Dec 17 05:30 sampledir
drwxrwxrwx 1 root root  4096 Dec 17 05:27 sampledir2
drwxr-xr-x 1 root root  4096 Dec 17 05:27 sampledir3
-rw-r--r-- 1 root root 16475 Dec 12 05:19 test_data
-rw-r--r-- 1 root root     1 Dec 12 05:17 test_data.csv
-rw-r--r-- 1 root root 16473 Dec 12 05:22 test_data1.csv
```

zip archive.zip file1.txt file2.txt

```
root@ICPL14580:/home/archivepractice# zip archive.zip file1.txt file2.txt
  adding: file1.txt (stored 0%)
  adding: file2.txt (stored 0%)
root@ICPL14580:/home/archivepractice#
```

unzip archive.zip

```
root@ICPL14580:/home/archivepractice# zip archive.zip file1.txt file2.txt
  adding: file1.txt (stored 0%)
  adding: file2.txt (stored 0%)
root@ICPL14580:/home/archivepractice# unzip archive.zip
Archive:  archive.zip
replace file1.txt? [y]es, [n]o, [A]ll, [N]one, [r]ename: n
replace file2.txt? [y]es, [n]o, [A]ll, [N]one, [r]ename: n
root@ICPL14580:/home/archivepractice# ls -l
total 0
-rw-r--r-- 1 root root 314 Dec 17 07:01 archive.zip
-rw-r--r-- 1 root root   0 Dec 17 07:00 file.txt
-rw-r--r-- 1 root root   0 Dec 17 07:00 file1.txt
-rw-r--r-- 1 root root   0 Dec 17 07:00 file2.txt
```

xz largefile

```
root@ICPL14580:/home/archivepractice# touch largefile.txt
root@ICPL14580:/home/archivepractice# xz largefile.txt
root@ICPL14580:/home/archivepractice# ls -l
total 0
-rw-r--r-- 1 root root 314 Dec 17 07:01 archive.zip
-rw-r--r-- 1 root root   0 Dec 17 07:00 file.txt
-rw-r--r-- 1 root root   0 Dec 17 07:00 file1.txt
-rw-r--r-- 1 root root   0 Dec 17 07:00 file2.txt
-rw-r--r-- 1 root root  32 Dec 17 07:04 largefile.txt.xz
root@ICPL14580:/home/archivepractice#
```

unxz largefile.xz

```
root@ICPL14580:/home/archivepractice# unxz largefile.txt.xz
root@ICPL14580:/home/archivepractice# ls -l
total 0
-rw-r--r-- 1 root root 314 Dec 17 07:01 archive.zip
-rw-r--r-- 1 root root   0 Dec 17 07:00 file.txt
-rw-r--r-- 1 root root   0 Dec 17 07:00 file1.txt
-rw-r--r-- 1 root root   0 Dec 17 07:00 file2.txt
-rw-r--r-- 1 root root   0 Dec 17 07:04 largefile.txt
root@ICPL14580:/home/archivepractice#
```

tar -czf backup.tar.gz /var/log

```
root@ICPL14580:/home/archivepractice# ls -l
total 0
-rw-r--r-- 1 root root  314 Dec 17 07:01 archive.zip
-rw-r--r-- 1 root root   45 Dec 17 07:07 backup.tar.gz
drwxr-xr-x 1 root root 4096 Dec 17 07:09 exampledir
-rw-r--r-- 1 root root    0 Dec 17 07:00 file.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file1.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file2.txt
-rw-r--r-- 1 root root    0 Dec 17 07:04 largefile.txt
root@ICPL14580:/home/archivepractice# tar -czf backup.tar.gz exampledir
root@ICPL14580:/home/archivepractice# ls -l
total 0
-rw-r--r-- 1 root root  314 Dec 17 07:01 archive.zip
-rw-r--r-- 1 root root  167 Dec 17 07:10 backup.tar.gz
drwxr-xr-x 1 root root 4096 Dec 17 07:09 exampledir
-rw-r--r-- 1 root root    0 Dec 17 07:00 file.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file1.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file2.txt
-rw-r--r-- 1 root root    0 Dec 17 07:04 largefile.txt
root@ICPL14580:/home/archivepractice#
```

tar -xzf backup.tar.gz

```
root@ICPL14580:/home/archivepractice# tar -xzf backup.tar.gz
root@ICPL14580:/home/archivepractice# ls -l
total 0
-rw-r--r-- 1 root root  314 Dec 17 07:01 archive.zip
-rw-r--r-- 1 root root  167 Dec 17 07:10 backup.tar.gz
drwxr-xr-x 1 root root 4096 Dec 17 07:09 exampledir
-rw-r--r-- 1 root root    0 Dec 17 07:00 file.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file1.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file2.txt
-rw-r--r-- 1 root root    0 Dec 17 07:04 largefile.txt
root@ICPL14580:/home/archivepractice#
```

zip -r project.zip /home/user/project

```
root@ICPL14580:/home/archivepractice# ls -l
total 0
-rw-r--r-- 1 root root  314 Dec 17 07:01 archive.zip
-rw-r--r-- 1 root root  167 Dec 17 07:10 backup.tar.gz
drwxr-xr-x 1 root root 4096 Dec 17 07:09 exampledir
-rw-r--r-- 1 root root    0 Dec 17 07:00 file.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file1.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file2.txt
-rw-r--r-- 1 root root    0 Dec 17 07:04 largefile.txt
root@ICPL14580:/home/archivepractice# zip -r project.zip exampledir
  adding: exampledir/ (stored 0%)
  adding: exampledir/sample.txt (stored 0%)
  adding: exampledir/sample1.txt (stored 0%)
  adding: exampledir/sample2.txt (stored 0%)
```

xz log1.log log2.log

```
root@ICPL14580:/home/archivepractice# touch sys.log sys.log1f
root@ICPL14580:/home/archivepractice# ls -l
total 4
-rw-r--r-- 1 root root  314 Dec 17 07:01 archive.zip
-rw-r--r-- 1 root root  167 Dec 17 07:10 backup.tar.gz
drwxr-xr-x 1 root root 4096 Dec 17 07:09 exampledir
-rw-r--r-- 1 root root    0 Dec 17 07:00 file.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file1.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file2.txt
-rw-r--r-- 1 root root    0 Dec 17 07:04 largefile.txt
-rw-r--r-- 1 root root  686 Dec 17 07:13 project.zip
-rw-r--r-- 1 root root    0 Dec 17 07:14 sys.log
-rw-r--r-- 1 root root    0 Dec 17 07:14 sys.log1f
root@ICPL14580:/home/archivepractice# xz sys.log sys.log1f
root@ICPL14580:/home/archivepractice# ls -l
total 4
-rw-r--r-- 1 root root  314 Dec 17 07:01 archive.zip
-rw-r--r-- 1 root root  167 Dec 17 07:10 backup.tar.gz
drwxr-xr-x 1 root root 4096 Dec 17 07:09 exampledir
-rw-r--r-- 1 root root    0 Dec 17 07:00 file.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file1.txt
-rw-r--r-- 1 root root    0 Dec 17 07:00 file2.txt
-rw-r--r-- 1 root root    0 Dec 17 07:04 largefile.txt
-rw-r--r-- 1 root root  686 Dec 17 07:13 project.zip
-rw-r--r-- 1 root root   32 Dec 17 07:14 sys.log.xz
-rw-r--r-- 1 root root   32 Dec 17 07:14 sys.log1f.xz
```

tar -xzf backup.tar.gz file1 file2

```
rw-r--r-- 1 root root  314 Dec 17 07:01 archive.zip
rw-r--r-- 1 root root  126 Dec 17 07:22 backup.tar.gz
rwxr-xr-x 1 root root 4096 Dec 17 07:09 exampledir
rw-r--r-- 1 root root    0 Dec 17 07:00 file.txt
rw-r--r-- 1 root root    0 Dec 17 07:21 file1.txt
rw-r--r-- 1 root root    0 Dec 17 07:21 file2.txt
rw-r--r-- 1 root root    0 Dec 17 07:04 largefile.txt
rw-r--r-- 1 root root  686 Dec 17 07:13 project.zip
rw-r--r-- 1 root root   32 Dec 17 07:14 sys.log.xz
rw-r--r-- 1 root root   32 Dec 17 07:14 sys.log1f.xz
root@ICPL14580:/home/archivepractice# rm file1.txt file2.txt
rm: remove regular empty file 'file1.txt'? y
rm: remove regular empty file 'file2.txt'? y
root@ICPL14580:/home/archivepractice# ls -l
total 4
rw-r--r-- 1 root root  314 Dec 17 07:01 archive.zip
rw-r--r-- 1 root root  126 Dec 17 07:22 backup.tar.gz
rwxr-xr-x 1 root root 4096 Dec 17 07:09 exampledir
rw-r--r-- 1 root root    0 Dec 17 07:00 file.txt
rw-r--r-- 1 root root    0 Dec 17 07:04 largefile.txt
rw-r--r-- 1 root root  686 Dec 17 07:13 project.zip
rw-r--r-- 1 root root   32 Dec 17 07:14 sys.log.xz
rw-r--r-- 1 root root   32 Dec 17 07:14 sys.log1f.xz
root@ICPL14580:/home/archivepractice# tar -xzf backup.tar.gz file1 file2
tar: file1: Not found in archive
tar: file2: Not found in archive
tar: Exiting with failure status due to previous errors
root@ICPL14580:/home/archivepractice# tar -xzf backup.tar.gz file1.txt file2.txt
root@ICPL14580:/home/archivepractice# ls -l
total 4
rw-r--r-- 1 root root  314 Dec 17 07:01 archive.zip
rw-r--r-- 1 root root  126 Dec 17 07:22 backup.tar.gz
rwxr-xr-x 1 root root 4096 Dec 17 07:09 exampledir
rw-r--r-- 1 root root    0 Dec 17 07:00 file.txt
rw-r--r-- 1 root root    0 Dec 17 07:21 file1.txt
rw-r--r-- 1 root root    0 Dec 17 07:21 file2.txt
rw-r--r-- 1 root root    0 Dec 17 07:04 largefile.txt
rw-r--r-- 1 root root  686 Dec 17 07:13 project.zip
rw-r--r-- 1 root root   32 Dec 17 07:14 sys.log.xz
rw-r--r-- 1 root root   32 Dec 17 07:14 sys.log1f.xz
root@ICPL14580:/home/archivepractice#
```

To sync and compress files for remote backup using rsync and gzip

rsync -avz /source/path/ user@remote:/destination/path/

The -z flag compresses data during transfer, saving bandwidth.