49 - Data Backups
`cp` used to archive a full directory
```
cp -a SrcDirectory DstDirectory
```

Tar backup program:

Syntax:
```
tar [options] ArchivFile  File_or_Directory
```

Creating or extracting `.tgz` or `.tar.gz` archive files
```
tar xzvf ArchiveFile  [-C Pfad]
```
     x=extract   z=uncompress   v=verbose   f=file
```
tar czvf  ArchiveFile  [-C Pfad]   c=create z=compress
tar tzf  ArchiveFile       (Shows the content of a tar archive)
tar rvzf  ArchiveFile  File
```
                   (Insert a file in a tar archive)

eg.
```
tar cvf archive1.tar file1 file2
```
         (Creates an archive and inserts file1 & file2)
```
tar rvf archive1.tar datei3
```
         (inserts datei3 in archive1.tar)
```
tar tzf archive1.tar.gz
```
         (Shows the content of archive1.tar.gz)
```
tar xzvf archive1.tar.gz file2
```
         (extracts file2 from archive1.tar.gz)

Using multiple removable media
```
tar -Mcvf /dev/fd0 /sourcedir
```
       (Creates a backup of a directory onto multiple floppies)
```
tar -Mxvf /dev/fd0
```
       (extract all files from a backup made on multiple floppies
       into the current directory)

Using separate `gzip` compression
```
gzip archive1.tar
```
         (compresses archive1.tar -> archive1.tar.gz)
```
gzip -d archive1.tar.gz
```
         (decompresses archive1.tar.gz)

Using extra `bz2` compression

Creating a `.tar.bz2` compressed file
```
tar fvcj filename.bz2 /dir_to_compress
```
Extracting a `.tar.bz2` file
```
tar fvxj filename.bz2
```

```
bzip2  file      (creates a filename.bz2, the original is erased)
bunzip2 file.bz2 (decompress the file.bz2, the original is erased)
```

- **`cpio` backup program.**
  ```
  cpio -i (--extract) -v  -I Device or File
  cpio -t (--list)
  find . | cpio -o (--create) -v (--verbose) -O Device_or_File
  ```

  `afio` is like `cpio` but uses compression `-Z` (`gzip`)

  Other backup programs
  `tob` (Tape Oriented Backup)
  `amanda` (Advanced Maryland Automated Network Disk Archiver)
  `arkaia` (Commercial and GPL graphic backup program)

Special tips and tricks of backing-up

- To make a backup of a directory with the date integrated in the filename:
  ```
  tar fvcz /bk/backup$(date '+F_%H.%M.%S').tar.gz /home
  ```
  will create the file(for example)
  ```
  /bk/backup2003.05.09-12.20.27.tar.gz
  ```
  containing the whole `/home` directory and its subdirectories.

- To copy a full image of a partition to a file on another host:
  Uncompressed:
  ```
  dd if=/dev/hda1 | ssh remotehost dd of=imagefile
  ```

  Compressed:
  ```
  dd if=/dev/hda1 | bunzip2 -c | ssh remotehost dd of=image.bz2
  ```

- To copy a whole directory without any file modifications:
  ```
  (cd /sourceDir && tar cf - . ) | (cd /destDir && tar xvfp -)
  ```