# Linux Administration

## File compression

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# Compressing files

- Various utilities and files formats are available on Linux.
- *zip* is an easy solution when you need compatibility with other systems.
- *tar* (historically “tape archiver”) is usually the go-to tool to manipulate archives files along with *gzip* or *xz*, used for compression.

# Manipulating zip archives

- Permissions and ownership are not supported.
- Create: *zip <archive>.zip <file>*
- Extract: *unzip <archive>.zip <file>*

# tar archives

- *tar* will aggregate multiples files in one, keeping the directory structure, the file permissions, ownership and other information.
- By itself *tar* doesn’t compress the data. Additional libraries are used for that purpose.
- A tar file is sometimes refered as a *tarball*.

# Manipulating tgz archives

- The *gzip* compressor can be used with *tar* to produce .tgz or .tar.gz files.
- Create: *tar cvfz <archive>.tgz <file>*
- Extract: *tar xvfz <archive>.tgz <file>*

# Manipulating txz archives

- The xz compressor can be used with tar to produce .txz or .tar.xz files.
- Create: *tar cvfJ <archive>.txz <file>*
- Extract: *tar xvfJ <archive>.txz <file>*

# Synchronizing files

- archive files can be used to maintain files consistency between systems, but a delay is added.
- *rsync* can be used to maintain a more real-time synchronization.

# rsync

- This tool can be used to maintain files and directories synchronized across different locations (on the same system, or different systems).
- *rsync* can use its own network protocol, or be used with SSH for additional security.
- Basic usage:
  *rsync -a <source> <destination>*

# Email encoding

- When attaching files to an email, the MIME standard is required to convert files to ASCII characters. This is performed by transforming the files using base64 encoding.
- Base64 files are larger (by 33%), not smaller.
- MIME:  Multipurpose Internet Mail Extensions
- ASCII: American Standard Code for Information Interchange
- base64: encoding algorithm using letters (uppercase and lowercase), numbers, characters plus and slash. The equal sign is used for padding if needed.

# mimencode

- Encoding a file:
- *mimencode <input file> -o <output file>*
- Decoding a file:
- *mimencode -u <input file> -o <output file>*