



Linux Commands for Professional Environment

Backup and Archive Commands

Practical Examples

TAR, ZIP, UNZIP, GZIP, GUNZIP, XZ, UNXZ

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Linux Commands

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tar

Creating Archives

Create a .tar Archive:

`tar -cvf archive.tar /path/to/directory`

- -c: Create a new archive.
- -v: Verbosely list files processed.
- -f: Specify the archive file name.

Create a .tar.gz Archive:

`tar -czvf archive.tar.gz /path/to/directory`

-z: Compress the archive with gzip.

Create a .tar.bz2 Archive:

`tar -cjvf archive.tar.bz2 /path/to/directory`

-j: Compress the archive with bzip2.

Create a .tar.xz Archive:

`tar -cJvf archive.tar.xz /path/to/directory`

-J: Compress the archive with xz.

Extracting Archives

Extract a .tar Archive:

`tar -xvf archive.tar`

-x: Extract files from the archive.

Extract a .tar.gz Archive:

`tar -xzvf archive.tar.gz`

-z: Decompress a gzip archive while extracting.

Extract a .tar.bz2 Archive:

`tar -xjvf archive.tar.bz2`

-j: Decompress a bzip2 archive while extracting.

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Extract a .tar.xz Archive:

```
tar -xJvf archive.tar.xz
```

-J: Decompress an xz archive while extracting.

Listing Contents of Archives

List Contents of a .tar Archive:

```
tar -tvf archive.tar
```

-t: List the contents of the archive.

List Contents of a .tar.gz Archive:

```
tar -tzvf archive.tar.gz
```

-z: Handle gzip compression.

List Contents of a .tar.bz2 Archive:

```
tar -tjvf archive.tar.bz2
```

-j: Handle bzip2 compression.

List Contents of a .tar.xz Archive:

```
tar -tJvf archive.tar.xz
```

-J: Handle xz compression.

Other Useful Operations

Extract to a Specific Directory:

```
tar -xvf archive.tar -C /path/to/destination
```

-C: Specify the destination directory.

Append Files to an Existing Archive:

```
tar -rvf archive.tar newfile.txt
```

-r: Append files to the end of an archive.

Update Files in an Archive:

```
tar -uvf archive.tar updatedfile.txt
```

-u: Only append files that are newer than the corresponding files in the archive.

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Delete Files from an Archive:

Note: You cannot directly delete files from a tar archive. However, you can extract the archive, remove the file, and create a new archive.

```
tar --delete -f archive.tar unwantedfile.txt
```

--delete: Delete files from the archive (only supported in GNU tar).

Create an Incremental Backup:

```
tar --listed-incremental=snapshot.file -cvf archive.tar /path/to/directory
```

--listed-incremental: Create an incremental archive based on the snapshot file.

Compress a Directory and Exclude Certain Files:

```
tar --exclude='*.log' -czvf archive.tar.gz /path/to/directory
```

--exclude: Exclude files matching the pattern.

Combining tar with Other Commands

Create an Archive and Pipe it to gzip:

```
tar -cvf - /path/to/directory | gzip > archive.tar.gz
```

Extract an Archive and Pipe it to tar:

```
gunzip -c archive.tar.gz | tar -xvf -
```

Create an Archive and Send it Over SSH:

```
tar -cvf - /path/to/directory | ssh user@remote 'cat > /path/to/destination/archive.tar'
```

Create an Archive of All .txt Files:

```
find /path/to/directory -name '*.txt' | tar -cvf text_files.tar -T -
```

Example Scenarios

Creating a Full Backup of /etc Directory:

```
tar -czvf etc_backup.tar.gz /etc
```

Extracting a Backup to Restore /etc Directory:

```
tar -xzvf etc_backup.tar.gz -C /
```

Creating a Split Archive (for Large Archives):

```
tar -cvf - /path/to/large_directory | split --bytes=500MB - large_archive.tar.part
```

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Merging Split Archives and Extracting:

```
cat large_archive.tar.part* | tar -xvf -
```

zip & unzip

The zip command compresses files into a ZIP archive, and unzip extracts files from a ZIP archive.

Basic Commands:

Create a ZIP archive:

```
zip -r archive.zip directory/
```

-r: Recursively include all files and directories.

Extract a ZIP archive:

```
unzip archive.zip
```

Additional Options:

List contents of a ZIP archive:

```
unzip -l archive.zip
```

Exclude files:

```
zip -r archive.zip directory/ -x '*.log'
```

Update a ZIP archive:

```
zip -u archive.zip file.txt
```

Freshen a ZIP archive:

```
zip -f archive.zip
```

gzip & gunzip

The gzip command compresses individual files, and gunzip decompresses them.

Basic Commands:

Compress a file:

```
gzip file.txt
```

This creates file.txt.gz.

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Decompress a file:

```
gunzip file.txt.gz
```

Additional Options:

Compress with maximum compression:

```
gzip -9 file.txt
```

Keep original file:

```
gzip -k file.txt
```

Decompress in-place:

```
gunzip file.txt.gz
```

xz & unxz

The xz command compresses files with the xz format, and unxz decompresses them.

Basic Commands:

Compress a file:

```
xz file.txt
```

This creates file.txt.xz.

Decompress a file:

```
unxz file.txt.xz
```

Additional Options:

Compress with maximum compression:

```
xz -9 file.txt
```

Keep original file:

```
xz -k file.txt
```

Decompress in-place:

```
unxz file.txt.xz
```

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Combining Commands with Other Tools

Using find with tar:

Create a tar archive of all .txt files found in a directory:

```
find /path/to/directory -name '*.txt' | tar -cvf text_files.tar -T -
```

Using find with gzip:

Compress all .txt files found in a directory:

```
find /path/to/directory -name '*.txt' -exec gzip {} \;
```

Using find with zip:

Create a ZIP archive of all .txt files found in a directory:

```
find /path/to/directory -name '*.txt' -exec zip archive.zip {} +
```

Using xargs with tar:

Create a tar archive of all .txt files using xargs:

```
find /path/to/directory -name '*.txt' | xargs tar -cvf text_files.tar
```

Combining tar and ssh:

Create a tar archive and send it over SSH to another machine:

```
tar -cvf - /path/to/directory | ssh user@remote 'cat > /path/to/destination/archive.tar'
```




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