

Linux Bash Utilities

Linux Documentation Utilities

Documentation on Linux is a great way to learn about installed utilities and commands. Linux provides many ways to access documentation:

- The `/usr/share/doc/` directory contains README files and other documents for installed commands.
- The `man` command to access reference manual pages for all installed commands. Usage: `man <command_name>` .
- The `info` command to access full detailed informational pages for all installed commands. Usage `info <command_name>` .

Linux Compression Utilities

Compression a file reduces its size. Linux Bash provides many utilities to compress and decompress files including `gzip` , `bzip2` , and `xz` . Files compressed with these commands have the extensions `.gz` , `.bz2` , and `.xz` respectively.

To compress, run `<compression_utility> <file_name>` .

To decompress, include the `-d` option:

`<compression_utility> -d <compressed_file_name>` .

`gzip` also supports the `-r` option to compress all files in a directory.

```
Compress all `.mp4` files in current
directory using `gzip`.
```

```
```
```

```
gzip *.mp4
```

```
```
```

```
Compress all files in the `videos` directory
using `gzip`.
```

```
```
```

```
gzip -r videos/
```

```
```
```

```
Decompress a compressed file using `bzip2`
```

```
```
```

```
bzip2 -d background.png.bz2
```

```
```
```

Linux Archive Utilities

Archiving consolidates multiple files together into one file for easier storage and portability. Linux Bash has two commands for archiving and extracting files: `zip` and `tar`.

| | zip | tar |
|----------------|---|--|
| Archive | <pre>zip <archive_name>.zip <file1> <file2>..</pre> | <pre>tar -cf <archive_name>.tar <files or directory></pre> |
| Extract | <pre>unzip <archive_name>.zip</pre> | <pre>tar -xf <archive_name>.tar</pre> |

In Linux environments, `tar` is preferred as a file extension because a tarball can retain important metadata like file permissions.

Compressing Archive Files

The `zip` bash command automatically compresses archived files while `tar` can be combined with compression utilities like `gzip`, `bzip2`, and `xz`. There are specific options for `tar` that must be used to match the compression command.

Here are the list of `tar` options:

- `-c` : Creates an archive
- `-x` : Extracts an archive
- `-f` : Creates an archive with given filename
- `-z` : Compress using `gzip`. Resulting file extension: `.tar.gz`.
- `-j` : Compress using `bzip2`. Resulting file extension: `.tar.bz2`.
- `-J` : Compress using `xz`. Resulting file extension: `.tar.xz`.

Linux Network Utilities

The Linux shell has many commands to manage and communicate with networks:

- `ping <target domain or IP>` : Checks connectivity between two devices on the same network by sending packets.
- `host <domain or IP>` : Performs DNS resolution, the process of converting a domain name to an IP address or vice versa.
- `ifconfig` : Shows network interface information.

```
Archiving the directory `riddles` using `zip`
...

zip riddles.zip -r riddles/
...
```

```
Archiving files using `tar`
...

tar -cf languages.tar english.txt french.txt
...
```

Archiving the media directory with tar using the xz compression:

```
$ tar -cf media.tar media/
$ xz media.tar
```

OR

```
$ tar -cJf media.tar.xz media/
```

Downloading a File in Linux

Two Linux terminal commands, `curl` and `wget`, can access, download a file from the internet, and even upload a file.

Either of the following commands establishes a connection with a server and downloads either the HTML of a webpage or a file stored at the URL to the current working directory.

```
$ curl -O <URL>
```

```
$ wget <URL>
```

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