

# In Cheatsheet

By Dejan Panovski • Updated on Mar 3, 2026 • [Download PDF](#)

## Quick reference for creating hard links and symbolic links with ln in Linux

The `ln` command creates hard links and symbolic (soft) links between files and directories. This cheatsheet covers symbolic and hard link creation, link management options, and how to inspect and verify links.

### Basic Syntax

Core `ln` command forms.

<code>ln TARGET LINK_NAME</code>	Create a hard link
<code>ln -s TARGET LINK_NAME</code>	Create a symbolic (soft) link
<code>ln -sf TARGET LINK_NAME</code>	Create or overwrite a symbolic link
<code>ln TARGET... DIRECTORY</code>	Create hard links to multiple targets in a directory
<code>ln -s TARGET... DIRECTORY</code>	Create symbolic links to multiple targets in a directory

### Symbolic Links

Create and manage soft links that point to a path.

<code>ln -s /etc/nginx/sites-available/app /etc/nginx/sites-enabled/app</code>	Enable an Nginx virtual host
<code>ln -s /usr/bin/python3 /usr/local/bin/python</code>	Create a <b>python</b> alias
<code>ln -s /opt/myapp /usr/local/bin/myapp</code>	Link a binary into PATH
<code>ln -s TARGET .</code>	Create a symlink to TARGET in the current directory
<code>ln -sf NEW_TARGET LINK_NAME</code>	Update an existing symlink to point to a new target

## Hard Links

Create additional directory entries pointing to the same inode.

<code>ln source.txt hardlink.txt</code>	Create a hard link to a file
<code>ln file1.txt file2.txt /backup/</code>	Create hard links to multiple files in a directory
<code>ln -v source.txt link.txt</code>	Show each link as it is created

Hard links share the same inode and data. Removing one does not delete the data until all hard links are removed. Hard links cannot span filesystems and cannot be created for directories.

## Link Options

Flags for controlling overwrite, backup, and verbosity behavior.

<code>-s, --symbolic</code>	Create a symbolic link instead of a hard link
<code>-f, --force</code>	Remove the destination file if it exists before linking
<code>-b, --backup</code>	Make a backup of each existing destination file
<code>-i, --interactive</code>	Prompt before removing an existing destination file
<code>-n, --no-dereference</code>	Treat a symlink to a directory as a normal file
<code>-v, --verbose</code>	Print the name of each linked file
<code>-r, --relative</code>	Create symbolic links relative to the link location

## Inspect and Verify Links

Check where links point and confirm they are valid.

<code>ls -l link_name</code>	Show the link and its target
<code>ls -la /path/</code>	List all entries including hidden symlinks
<code>readlink link_name</code>	Print the target of a symbolic link
<code>readlink -f link_name</code>	Print the fully resolved absolute path
<code>stat link_name</code>	Show full metadata including inode and link count
<code>file link_name</code>	Identify whether a path is a symbolic link
<code>find . -type l</code>	Find all symbolic links under the current directory
<code>find . -xtype l</code>	Find broken symbolic links

## Troubleshooting

Quick checks for common `ln` issues.

File exists	Use <code>-f</code> to force overwrite, or <code>-i</code> to confirm before replacing
Too many levels of symbolic links	A circular symlink chain exists; use <code>readlink -f</code> to trace the path
Invalid cross-device link	Hard links cannot span different filesystems; use a symbolic link instead
Broken symlink (dangling)	The target path no longer exists; update with <code>ln -sf NEW_TARGET LINK_NAME</code>
Symlink points to wrong target	Run <code>readlink link_name</code> to confirm the current target, then use <code>ln -sf</code> to correct it

## Related Guides

Use these guides for full workflows and file management patterns.

<a href="#">ln Command in Linux</a>	Full <code>ln</code> tutorial with examples
<a href="#">How to Remove Symbolic Links in Linux</a>	Delete symlinks safely
<a href="#">unlink Command in Linux</a>	Remove a single link entry
<a href="#">ls Command in Linux</a>	List and inspect files and links
<a href="#">chmod Command in Linux</a>	Set permissions on files and links