

Exercises shared libraries

Exercise 1: Identify Shared Library Dependencies

1. Locate the absolute path of the `ls` binary:

```
which ls
```

2. Use `ldd` to list its dependencies:

```
ldd /usr/bin/ls
```

Question: What is the purpose of `/lib64/ld-linux-x86-64.so.2` in this list?

Exercise 2: Explore Library Paths

1. Check `/etc/ld.so.conf` and directories listed inside:

```
cat /etc/ld.so.conf
```

Some distributions include other files in `/etc/ld.so.conf.d/`.

Exercise 2: Inspect and Refresh the Shared Library Cache

Goal: Interact with the shared library cache.

1. List cached libraries:

```
ldconfig -p | head
ldconfig -p | wc -l
```

2. Note how the `.so` names map to their full versions (symlinks).

3. Delete and recreate the cache:

```
sudo rm /etc/ld.so.cache

sudo ldconfig -p

ldconfig: Can't open cache file /etc/ld.so.cache

sudo ldconfig
```

```
sudo ldconfig -p
```

Question: Which file stores this cache of library names and paths?

(/etc/ld.so.cache)

Exercise 3: List libraries used by a binary

Note: `ldd` just lists the libraries to be used by the command. `ltrace` actually runs the command.

First install `ltrace`:

```
dnf install -y ltrace
```

1. Try running:

```
ldd /usr/bin/ls
```

2. Try running:

```
ltrace /usr/bin/ls
```