Sudo Overview

What is Sudo, and Why Do We Need It?

Imagine you're a regular user on a Linux system, and you need to perform some administrative tasks, like installing software or modifying system files. Without `sudo`, you'd be stuck, unable to make the necessary changes because of those pesky permission restrictions.That's where `sudo` comes in – it's like a magic wand that grants you temporary superpowers, allowing you to execute commands with elevated privileges of a root user.

Let's understand this with an example. So, in linux we have a file name called shadow file which contain all user passwords. So, if we want to peek into it, let's see what happens.

We got a permission denied error. Let's try again but this time with the sudo command.

```
$ sudo cat /etc/shadow
```

Why Not Just Log in as Root?

Good question! While logging in as the root user would give you unrestricted access, it's generally considered a security risk. With `sudo`, you only elevate your privileges temporarily, reducing the chances of accidentally causing system-wide damage. Plus, `sudo` keeps a log of all commands executed with elevated privileges, providing an audit trail for accountability purposes.

Configuring Sudo: The Sudoers File

Next question that comes in mind is that how we can configure sudo ?

There is a `sudoers` file, which typically located at `/etc/sudoers`, and it is the central configuration file for `sudo`. It defines the rules and permissions for users and groups to run privileged commands. System administrators can edit this file using the `visudo` command to grant or revoke `sudo` privileges for specific users or groups.

```
$ sudo visudo
```

Practical Examples

1. **Running a command with `sudo`**: `$ sudo apt-get update`
2. **Switching to the root user**: `$ sudo -i`
3. **Listing `sudo` privileges**: `$ sudo -l`

This will displays the list of allowed and forbidden commands for the current user based on the `sudoers` file.
