

Project: Implementing a Trash-Enabled rm and restore System

```
phirum@DESKTOP-2L0CGP0:~$ mkdir -p ~/safe-rm-demo && cd ~/safe-rm-demo
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ sudo mkdir -p /tmp/trash
[sudo] password for phirum:
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ sudo mkdir -p /tmp/trash
ash
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ sudo touch /tmp/trash/trash.log
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ sudo chmod 1777 /tmp/trash
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ sudo chmod 666 /tmp/trash/trash.log
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ mkdir -p ~/bin
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ nano ~/bin/rm
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ chmod +x ~/bin/rm
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ chmod +x ~/bin/rm
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ nano ~/bin/restore
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ chmod +x ~/bin/restore
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ echo 'export PATH="$HOME/bin:$PATH"' >> ~/.bashrc
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ source ~/.bashrc 2>/dev/null || source ~/.zshrc 2>/dev/null
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ type -a rm
rm is /home/phirum/bin/rm
rm is /usr/bin/rm
rm is /bin/rm
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ echo "hello" > test1.
```

txt

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ rm test1.txt
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ ls -l /tmp/trash/
```

```
total 8
```

```
-rw-r--r-- 1 phirum phirum   6 Aug 27 22:40 test1__20250827154022Z_18066.txt
```

```
-rw-rw-rw- 1 root   root  101 Aug 27 22:40 trash.log
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ tail -n 5 /tmp/trash/trash.log
```

```
2025-08-27T15:40:22Z    /home/phirum/safe-rm-demo/test1.txt/  
tmp/trash/test1__20250827154022Z_18066.txt
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ nano ~/bin/rm
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ chmod +x ~/bin/rm
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ echo "hi" > demo.txt
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ rm demo.txt
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ tail -n 5 /tmp/trash/trash.log
```

```
2025-08-27T15:40:22Z    /home/phirum/safe-rm-demo/test1.txt/  
tmp/trash/test1__20250827154022Z_18066.txt
```

```
2025-08-27T15:44:10Z    /home/phirum/safe-rm-demo/demo.txt /  
tmp/trash/demo__20250827154410Z_21361.txt
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ nano ~/bin/rm
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ nano ~/bin/restore
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ mkdir -p folder && echo "inside" > folder/file.txt
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ rm -r folder
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ ls -l /tmp/trash/
```

```
total 16
```

```
-rw-r--r-- 1 phirum phirum   3 Aug 27 22:44 demo__202508271
```

```
54410Z_21361.txt
drwxr-xr-x 2 phirum phirum 4096 Aug 27 22:50 folder__2025082
7155018Z_29910
-rw-r--r-- 1 phirum phirum    6 Aug 27 22:40 test1__20250827
154022Z_18066.txt
-rw-rw-rw- 1 root    root    295 Aug 27 22:50 trash.log
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ tail -n 5 /tmp/trash/
trash.log
2025-08-27T15:40:22Z    /home/phirum/safe-rm-demo/test1.txt/
tmp/trash/test1__20250827154022Z_18066.txt
2025-08-27T15:44:10Z    /home/phirum/safe-rm-demo/demo.txt /
tmp/trash/demo__20250827154410Z_21361.txt
2025-08-27T15:50:18Z    /home/phirum/safe-rm-demo/folder    /
tmp/trash/folder__20250827155018Z_29910
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ nano ~/bin/restore
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ chmod +x ~/bin/restor
e
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ echo 'export PATH="$H
OME/bin:$PATH"' >> ~/.bashrc
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ echo 'export PATH="$H
OME/bin:$PATH"' >> ~/.zshrc
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ source ~/.bashrc 2>/d
ev/null || source ~/.zshrc 2>/dev/null
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ type -a rm
rm is /home/phirum/bin/rm
rm is /home/phirum/bin/rm
rm is /home/phirum/bin/rm
rm is /usr/bin/rm
rm is /bin/rm
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ echo "hello" > test1.
```

txt

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ rm test1.txt
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ ls -l /tmp/trash/
```

total 20

```
-rw-r--r-- 1 phirum phirum    3 Aug 27 22:44 demo__20250827154410Z_21361.txt
```

```
drwxr-xr-x 2 phirum phirum 4096 Aug 27 22:50 folder__20250827155018Z_29910
```

```
-rw-r--r-- 1 phirum phirum    6 Aug 27 22:40 test1__20250827154022Z_18066.txt
```

```
-rw-r--r-- 1 phirum phirum    6 Aug 27 23:09 test1__20250827160937Z_25889.txt
```

```
-rw-rw-rw- 1 root  root    396 Aug 27 23:09 trash.log
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ tail -n 5 /tmp/trash/trash.log
```

```
2025-08-27T15:40:22Z    /home/phirum/safe-rm-demo/test1.txt/
tmp/trash/test1__20250827154022Z_18066.txt
```

```
2025-08-27T15:44:10Z    /home/phirum/safe-rm-demo/demo.txt /
tmp/trash/demo__20250827154410Z_21361.txt
```

```
2025-08-27T15:50:18Z    /home/phirum/safe-rm-demo/folder    /
tmp/trash/folder__20250827155018Z_29910
```

```
2025-08-27T16:09:37Z    /home/phirum/safe-rm-demo/test1.txt/
tmp/trash/test1__20250827160937Z_25889.txt
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ mkdir -p folder && echo "inside" > folder/file.txt
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ rm -r folder
```

```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ ls -l /tmp/trash/
```

total 24

```
-rw-r--r-- 1 phirum phirum    3 Aug 27 22:44 demo__20250827154410Z_21361.txt
```

```
drwxr-xr-x 2 phirum phirum 4096 Aug 27 22:50 folder__20250827155018Z_29910
drwxr-xr-x 2 phirum phirum 4096 Aug 27 23:10 folder__20250827161033Z_29112
-rw-r--r-- 1 phirum phirum 6 Aug 27 22:40 test1__20250827154022Z_18066.txt
-rw-r--r-- 1 phirum phirum 6 Aug 27 23:09 test1__20250827160937Z_25889.txt
-rw-rw-rw- 1 root root 491 Aug 27 23:10 trash.log
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ tail -n 5 /tmp/trash/trash.log
2025-08-27T15:40:22Z /home/phirum/safe-rm-demo/test1.txt/
tmp/trash/test1__20250827154022Z_18066.txt
2025-08-27T15:44:10Z /home/phirum/safe-rm-demo/demo.txt /
tmp/trash/demo__20250827154410Z_21361.txt
2025-08-27T15:50:18Z /home/phirum/safe-rm-demo/folder /
tmp/trash/folder__20250827155018Z_29910
2025-08-27T16:09:37Z /home/phirum/safe-rm-demo/test1.txt/
tmp/trash/test1__20250827160937Z_25889.txt
2025-08-27T16:10:33Z /home/phirum/safe-rm-demo/folder /
tmp/trash/folder__20250827161033Z_29112
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ restore test1.txt
Restored: /home/phirum/safe-rm-demo/test1.txt (original deletion at 2025-08-27T16:09:37Z)
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ restore test1
restore: missing from trash: /tmp/trash/test1__20250827160937Z_25889.txt
phirum@DESKTOP-2L0CGP0:~/safe-rm-demo$ ls -l .
total 4
-rw-r--r-- 1 phirum phirum 6 Aug 27 23:09 test1.txt
```



```
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ entry=$(grep "$1" /tm
p/trash/trash.log | tail -n 1)
phirum@DESKTOP-2L0CGPO:~/safe-rm-demo$ cd ~/bin
phirum@DESKTOP-2L0CGPO:~/bin$ zip ~/trash-safe-rm.zip rm res
tore
Command 'zip' not found, but can be installed with:
sudo apt install zip
phirum@DESKTOP-2L0CGPO:~/bin$ sudo apt update
[sudo] password for phirum:
Sorry, try again.
[sudo] password for phirum:
Hit:1 http://packages.ros.org/ros2/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRel
ease [129 kB]
Hit:3 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:4 http://archive.ubuntu.com/ubuntu jammy-updates InRelea
se [128 kB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security/main
amd64 Packages [2,595 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-backports InRel
ease [127 kB]
Get:7 http://archive.ubuntu.com/ubuntu jammy-updates/main am
d64 Packages [2,873 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/unive
rse amd64 Packages [994 kB]
Get:9 http://archive.ubuntu.com/ubuntu jammy-updates/main Tr
anslation-en [451 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy-updates/restri
cted amd64 Packages [4,340 kB]
Get:11 http://archive.ubuntu.com/ubuntu jammy-updates/restri
```

```
cted Translation-en [793 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy-updates/univer
se amd64 Packages [1,227 kB]
Get:13 http://archive.ubuntu.com/ubuntu jammy-updates/univer
se Translation-en [304 kB]
Fetched 14.0 MB in 7s (2,128 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
86 packages can be upgraded. Run 'apt list --upgradable' to
see them.
phirum@DESKTOP-2L0CGPO:~/bin$ sudo apt install zip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  unzip
The following NEW packages will be installed:
  unzip zip
0 upgraded, 2 newly installed, 0 to remove and 86 not upgrad
ed.
Need to get 350 kB of archives.
After this operation, 930 kB of additional disk space will b
e used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/main am
d64 unzip amd64 6.0-26ubuntu3.2 [175 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 zip
amd64 3.0-12build2 [176 kB]
Fetched 350 kB in 2s (165 kB/s)
```

```
phirum@DESKTOP-2L0CGPO:~/bin$ cd ~/bin
phirum@DESKTOP-2L0CGPO:~/bin$ zip ~/trash-safe-rm.zip rm restore
adding: rm (deflated 58%)
adding: restore (deflated 53%)
phirum@DESKTOP-2L0CGPO:~/bin$ nano ~/safe-rm-demo/README.md
phirum@DESKTOP-2L0CGPO:~/bin$ restore file.txt
restore: no match found in log for: file.txt
phirum@DESKTOP-2L0CGPO:~/bin$ echo "hello" > testfile.txt
phirum@DESKTOP-2L0CGPO:~/bin$ rm testfile.txt
phirum@DESKTOP-2L0CGPO:~/bin$ ls /tmp/trash
demo__20250827154410Z_21361.txt
folder__20250827155018Z_29910
folder__20250827161033Z_29112
restore.log
test1__20250827154022Z_18066.txt
testfile__20250827163406Z_7993.txt
trash.log
phirum@DESKTOP-2L0CGPO:~/bin$ tail -n 5 /tmp/trash/trash.log
2025-08-27T15:44:10Z      /home/phirum/safe-rm-demo/demo.txt /
tmp/trash/demo__20250827154410Z_21361.txt
2025-08-27T15:50:18Z      /home/phirum/safe-rm-demo/folder    /
tmp/trash/folder__20250827155018Z_29910
2025-08-27T16:09:37Z      /home/phirum/safe-rm-demo/test1.txt/
tmp/trash/test1__20250827160937Z_25889.txt
2025-08-27T16:10:33Z      /home/phirum/safe-rm-demo/folder    /
tmp/trash/folder__20250827161033Z_29112
2025-08-27T16:34:06Z      /home/phirum/bin/testfile.txt      /tmp
/trash/testfile__20250827163406Z_7993.txt
phirum@DESKTOP-2L0CGPO:~/bin$ testfile__20250827161005Z_1234
5.txt
testfile__20250827161005Z_12345.txt: command not found
phirum@DESKTOP-2L0CGPO:~/bin$ restore testfile.txt
Restored: /home/phirum/bin/testfile.txt (original deletion
at 2025-08-27T16:34:06Z)
phirum@DESKTOP-2L0CGPO:~/bin$ mkdir ~/safe-rm-final
phirum@DESKTOP-2L0CGPO:~/bin$ cp ~/bin/rm ~/bin/restore ~/sa
fe-rm-demo/README.md ~/safe-rm-final/
phirum@DESKTOP-2L0CGPO:~/bin$ cd ~
phirum@DESKTOP-2L0CGPO:~$ zip -r safe-rm-final.zip safe-rm-f
inal
adding: safe-rm-final/ (stored 0%)
adding: safe-rm-final/restore (deflated 53%)
adding: safe-rm-final/README.md (deflated 44%)
adding: safe-rm-final/rm (deflated 58%)
phirum@DESKTOP-2L0CGPO:~$
```