Advanced/Special Permissions : SUID & GUID

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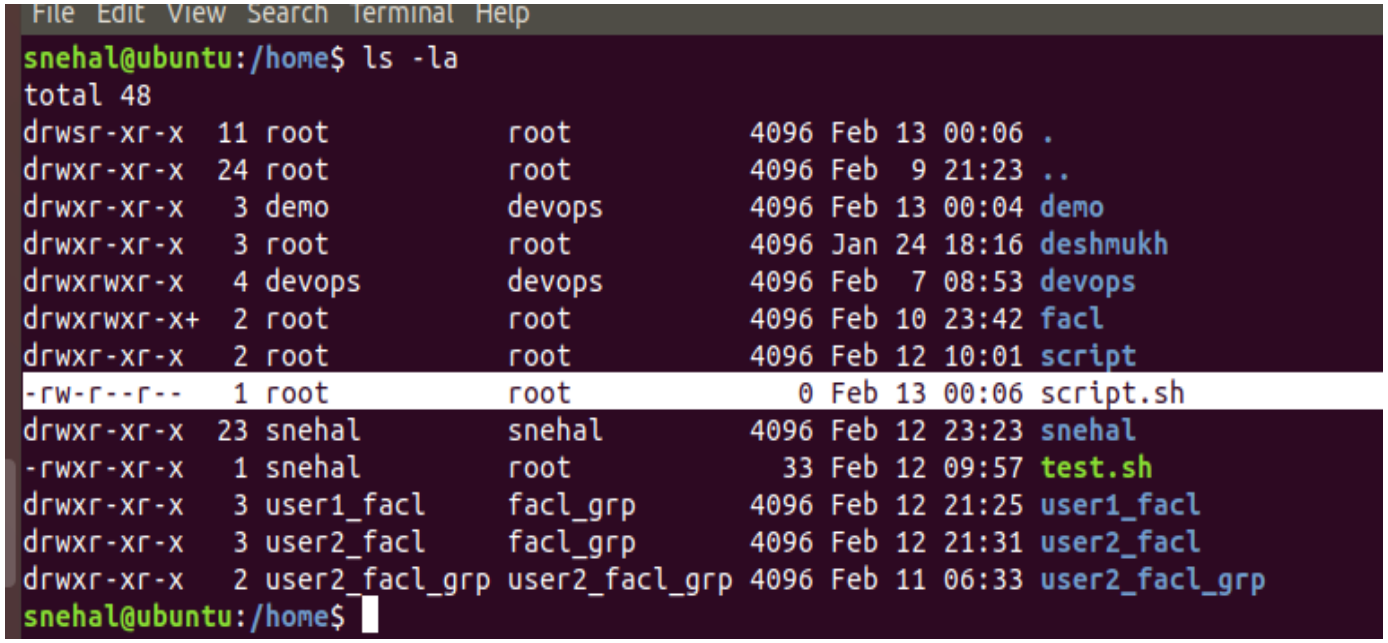
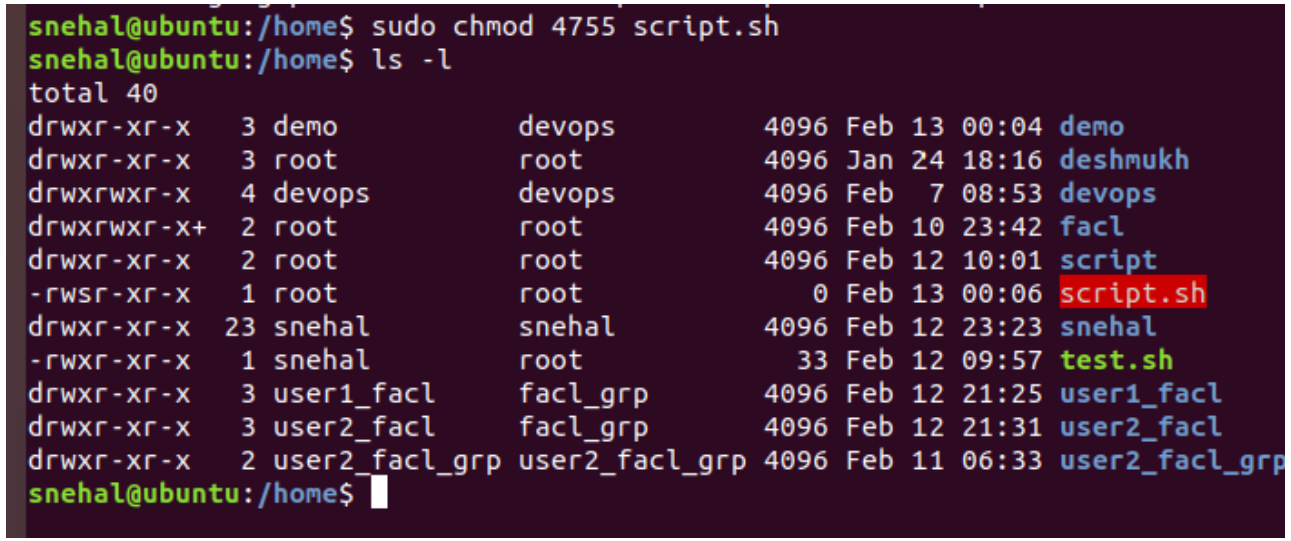
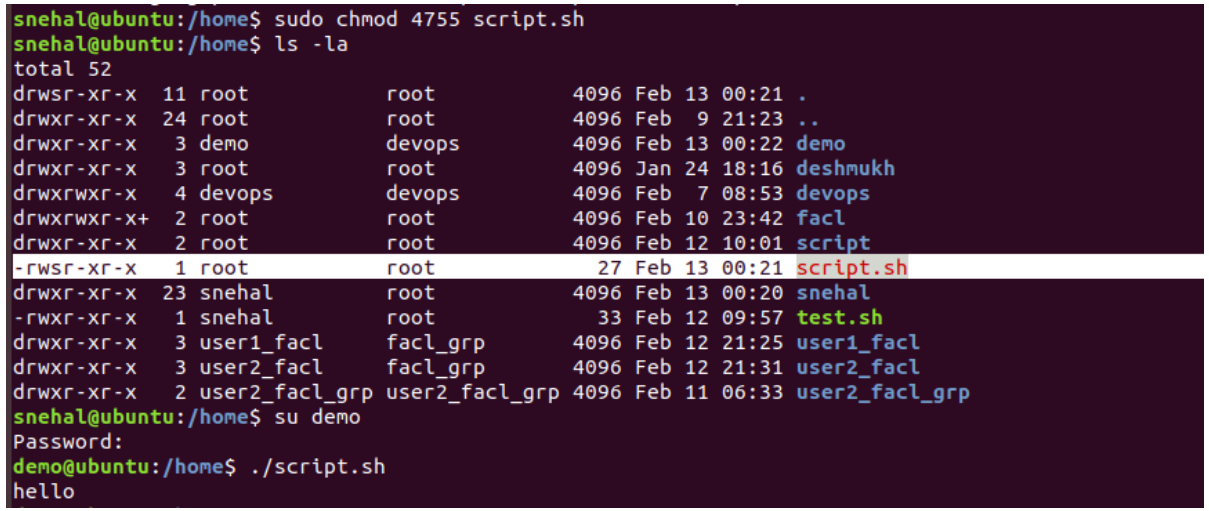
We create a file script.sh & try to excute in another user it gives you error perm.denied :



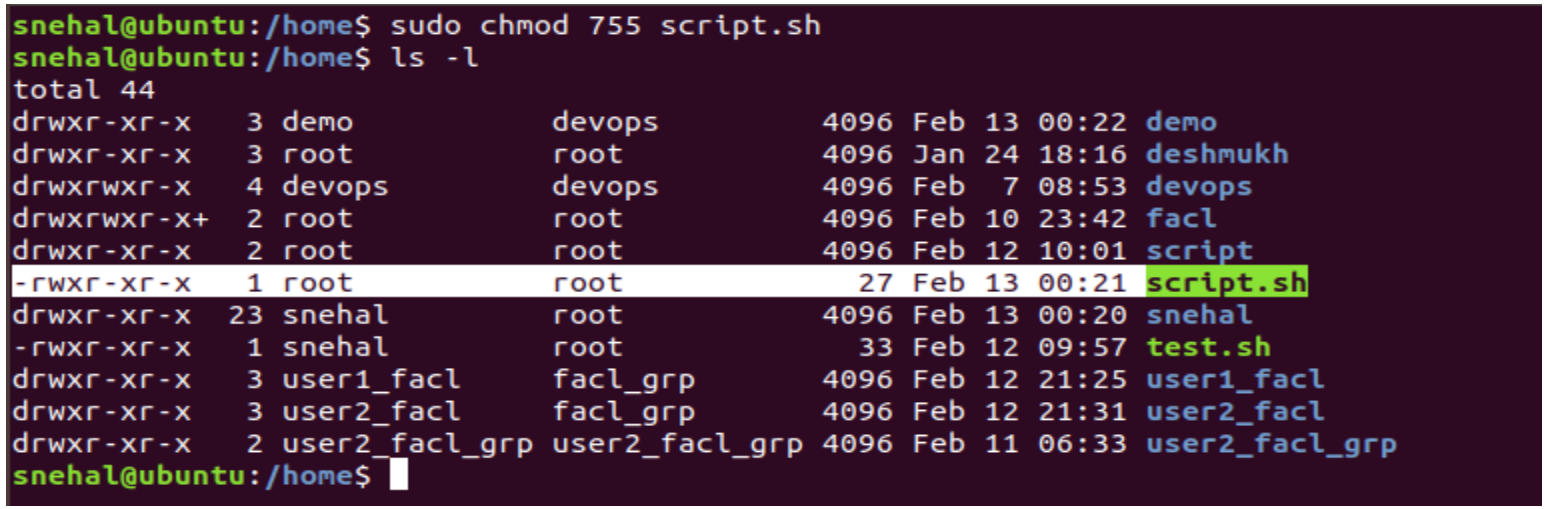
So we set the SUID bit on it. To do this using the numeric method :



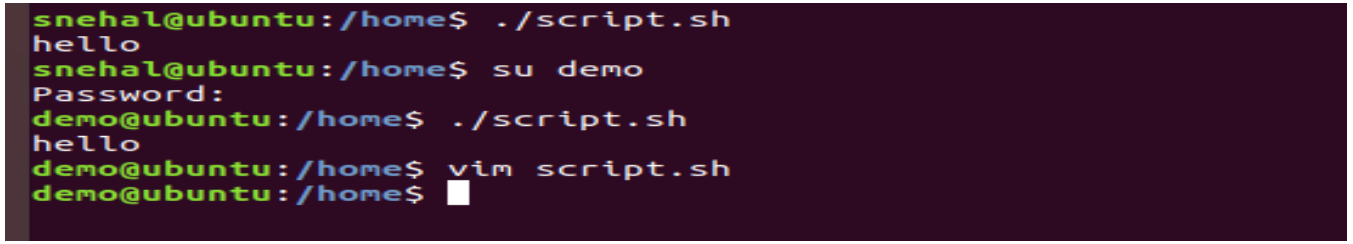
When you set the file permissions to 4755 (which is equivalent to rwxr-sr-x), it means that the owner of the file has read, write, and execute permissions, while others (that is, users who are not the owner and do not belong to the same group as the owner) have only execute permissions. This means that other users will not be able to write to the file.



chmod 755 script.sh
that is, owner has read, write, and execute permissions, while group and others have read and execute permissions only). This effectively removes the SUID bit from the file.

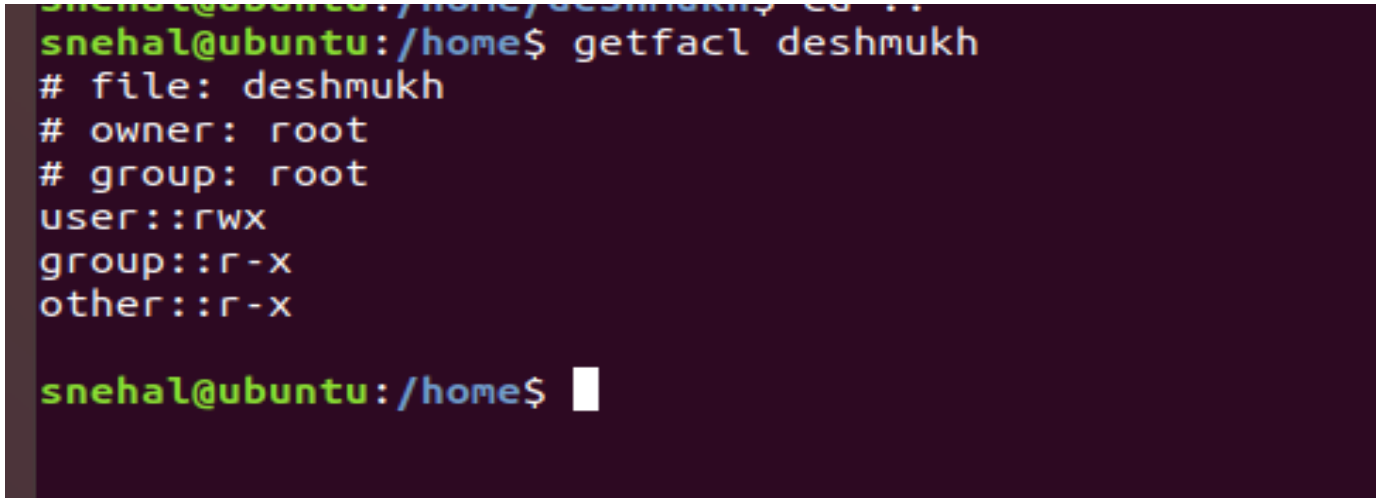


The file will run with the permissions of its owner



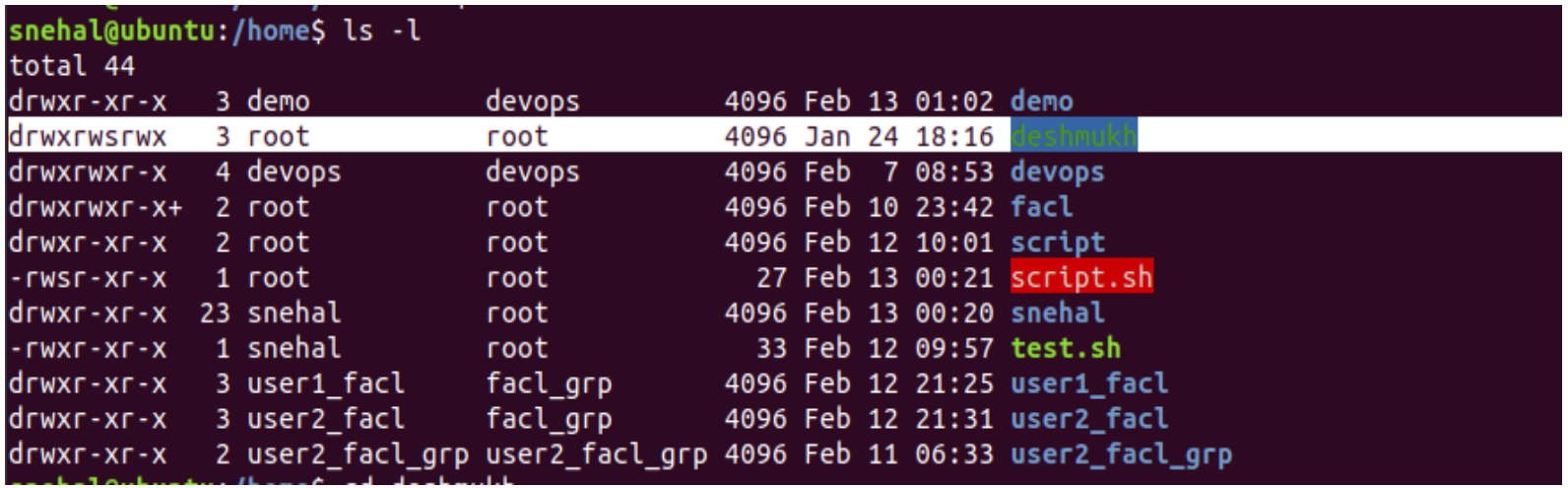
Before Set SUID	After Set SUID
The file will run with the permissions of the user who executes it.	The file will run with the permissions of its owner, regardless of who executes it.
The file will run with the permissions of its owner	The file will run with the permissions of its owner, regardless of who executes it.
generally considered a more secure configuration, as it reduces the attack surface of the file and makes it less likely to be used for malicious purposes.	setting the SUID bit on a file can be a security risk, as it allows anyone who can run the file to execute it with elevated privileges.

SGID- check directory info



sudo chmod 2777 deshmukh : sets the SGID bit in the group permissions, which allows new subdirectories created within the directory to inherit the group ownership of the parent directory

```
snehal@ubuntu:/home$ sudo chmod 2777 deshmukh
snehal@ubuntu:/home$ getfacl deshmukh
# file: deshmukh
# owner: root
# group: root
# flags: -s-
user::rwx
group::rwx
other::rwx
```


snehal@ubuntu:/home$ ls -l
total 44
drwxr-xr-x 3 demo   devops   4096 Feb 13 01:02 demo
drwxrwsrwx 3 root   root   4096 Jan 24 18:16 deshmukh
drwxrwxr-x 4 devops   devops   4096 Feb 7 08:53 devops
drwxrwxr-x+ 2 root   root   4096 Feb 10 23:42 facl
drwxr-xr-x 2 root   root   4096 Feb 12 10:01 script
-rwsr-xr-x 1 root   root   27 Feb 13 00:21 script.sh
drwxr-xr-x 23 snehal   root   4096 Feb 13 00:20 snehal
-rwxr-xr-x 1 snehal   root   33 Feb 12 09:57 test.sh
drwxr-xr-x 3 user1_facl   facl_grp   4096 Feb 12 21:25 user1_facl
drwxr-xr-x 3 user2_facl   facl_grp   4096 Feb 12 21:31 user2_facl
drwxr-xr-x 2 user2_facl_grp user2_facl_grp 4096 Feb 11 06:33 user2_facl_grp

Additionally, the 7 in the group and others permissions fields grants full permissions (read, write, and execute) to the group and others.