

Issues while just create a share group, assign SGID to the shared directory in Linux

It is limited and presents three issues:

1. The default umask does not set the write permission for the share group.

This means the owner must manually set the group write permission for every file created. This is an extra step to remember. If a user forgets to assign the write permission on a file, then no other user may write to that file and all users must wait until the file owner allows writing.

We want file sharing to be as automatic and transparent as possible for simplicity and convenience. While we could change the default system umask, this would present a security risk. We want group write permissions for the shared directory only.

2. Only the file owner may modify file permissions.

We want any user to modify the permissions of any file. Members of the share group are assumed to trust each other, so this should not be a problem. All other users are denied access.

Suppose a script is created, but the owner forgets to set the execute bit. Another user needs to run the file, but he must wait until the owner sets the execute bit on the script. This involves contacting the file owner and waiting. What if the owner is on vacation? By allowing any user to modify file permissions on files within the shared directory, waiting is eliminated.

3. Files copied from FAT/NTFS file systems remove group permissions.

Suppose you copy a file from a USB thumb drive into the shared directory. Devices like these are often formatted in FAT. The typical Linux permission/SGID/group system will only allow the owner to access the FAT files. Group and others will be denied.

The user copying the files from the USB device is given ownership of those files while group and other permissions are stripped. No other user would be able to access those files until the owner manually assigns the share group and share permissions.

While this might not be a problem for a few files, it requires an extra step to remember and quickly becomes tedious—especially if permissions must be set recursively. If something is tedious, people will avoid using it.

Linux has no built-in way to assign a default group and default permissions to files created in a specific directory. This is why we use bindfs. bindfs automatically assigns the default share group and read/write permissions to files created in /var/share no matter the file's source. This way, when a file is copied from a FAT/NTFS device, the file will be “imported” into the ext4 file system with the proper permissions.

Source : <https://delightfullylinux.wordpress.com/2012/04/17/local-file-sharing-in-linux/>