

Ex. No. 12 Mounting Folders and Files using FUSE

Aim :

To mount and unmount a folder as a file system in user space using File System in User Space (FUSE) in Ubuntu, that serves as an interface between file system and the kernel.

About the Experiment:

Filesystem in Userspace (FUSE) is an [operating system](#) mechanism for [Unix-like](#) computer operating systems that lets non-privileged users create their own [file systems](#) without editing [kernel](#) code. This is achieved by running file system code in [user space](#) while the FUSE module provides only a "bridge" to the actual kernel interfaces.

To envision our interaction with an object in terms of a directory structure and filesystem operations, and write a FUSE file system to provide that interaction. A code that implements file operations like `open()`, `read()`, and `write()`; when filesystem is mounted, programs are able to access the data using the standard file operation system calls.

"Big Brother File System" (the reason for the name is that "Big Brother is watching." The filesystem simply passes every operation down to an underlying directory, and logs the operation.

Procedure:

1. Enter `wget <TARBALL_URL>` at the console to copy the tarball to system.
2. Enter `tar -xzf <TARBALL_FILENAME>` to decompress and unpack the archive.
3. Navigate to the directory that contains the extracted FUSE files.
4. Enter `./configure` to configure FUSE for compilation.
5. Enter `make` to compile FUSE
 - If the compilation completes successfully, enter `make install` to complete the installation of FUSE.

Note : make sure you are not logged in root.

6. Download fuse-tutorial from <http://www.cs.nmsu.edu/~pfeiffer/fuse-tutorial.tgz>.
7. Unzip it and change working directory to the unzipped directory, i.e `cd fuse-tutorial`.
8. `cd src`.
9. Type `pkg-config fuse --cflags`. And `pkg-config fuse --libs`.
10. Type `make` for updates.
11. Navigate to examples directory.
12. move to `rootdir` from examples. You must find two directories- `rootdir` and `mountdir`.
13. Type commands below to add files in root dir.

13.1 mkdir fusetest

13.2 mkdir mydir

13.3 touch myfile

13.4 touch fusefile

14. cd .. to rootdir and type ../src/bbfs rootdir/ mountdir/

15. Check if mountdir is mounted by ls -l mountdir, you will find all files in rootdir in mountdir.

16. To unmount, type fusermount -u mountdir.

ScreenShots:



