UOIT
CHALLENGE INNOVATE CONNECT

UNIVERSITY OF ONTARIO
INSTITUTE OF TECHNOLOGY

SOFE 3950U / CSCI 3020U: Operating Systems

Design of Function Call Graphs for Simulated Unix File System.

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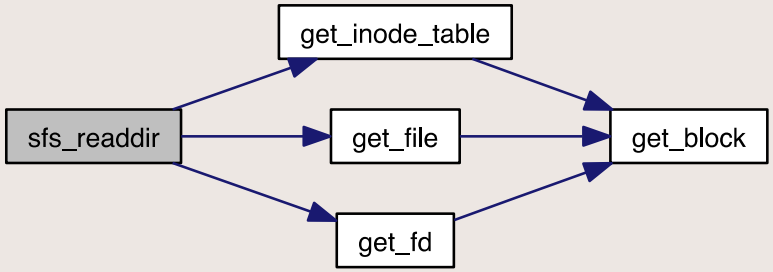
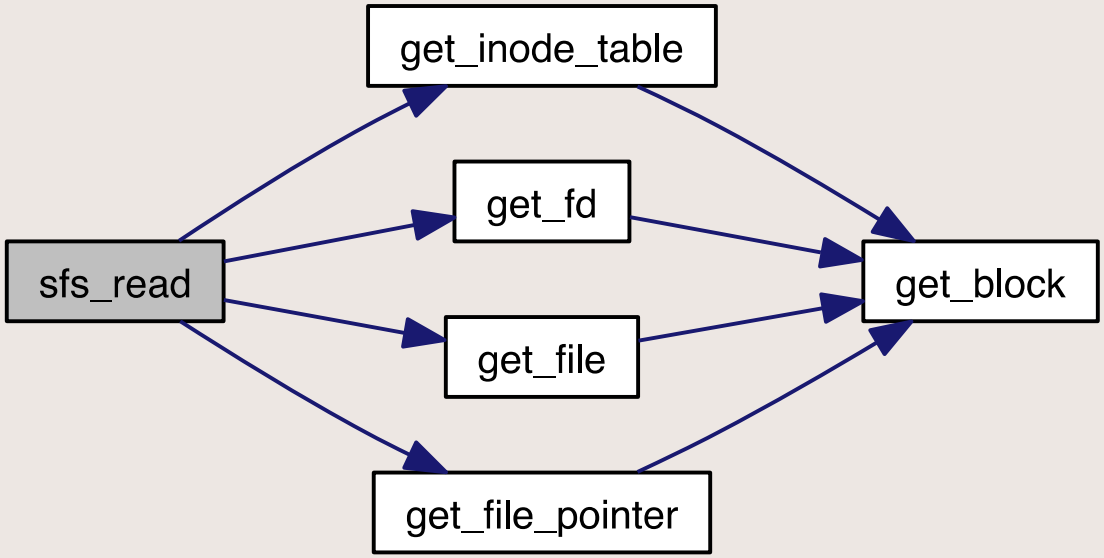
STRUCTURE OF THE PROGRAM

- The structure of this program is modular and the higher-level functions use (call) some lower level functions. Therefore, the design follows the principle of the modular software development.
- Two source files are responsible for providing the required lower level functions for the "file system interfaces":
- 1. *super_block.c*: contains the functions related to super block handling
- 2. *I_node.c*: contains the rest of the low level functions.
- Each primitive function should be commented (as the header) and its name must be self-explanatory.
- Post-condition testing should be used for each function call to provide a reliable usage of that function.
- In the following slides, first the primitive functions are shown.

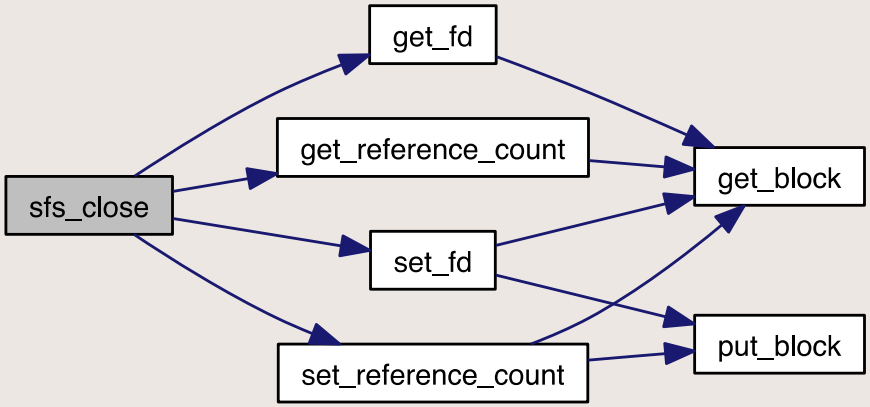
Read Directory



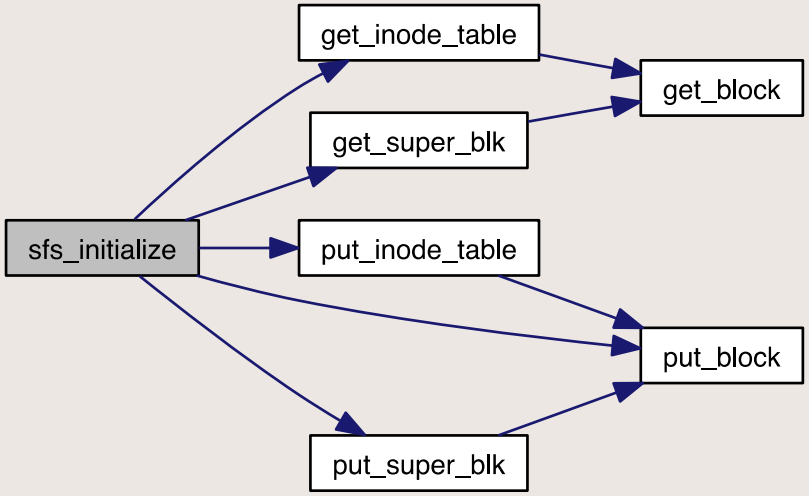
Read File


get_inode_table
get_fd
sfs_read
get_block
get_file
get_file_pointer

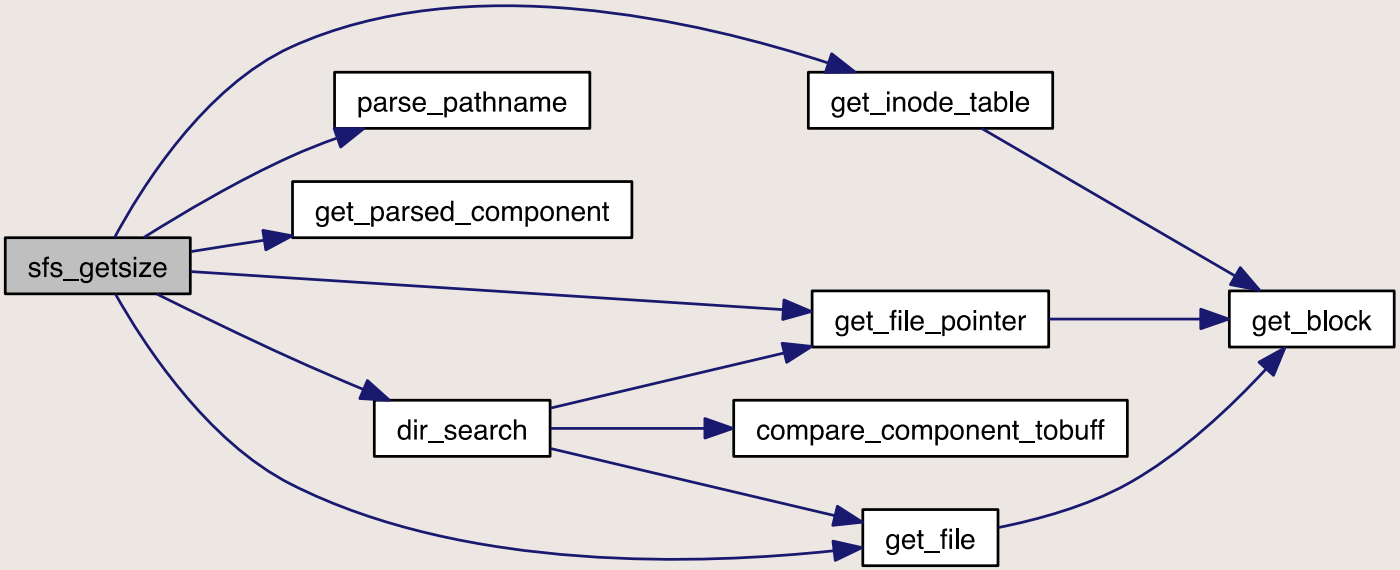
Close File


get_fd
get_reference_count
sfs_close
set_fd
get_block
put_block
set_reference_count

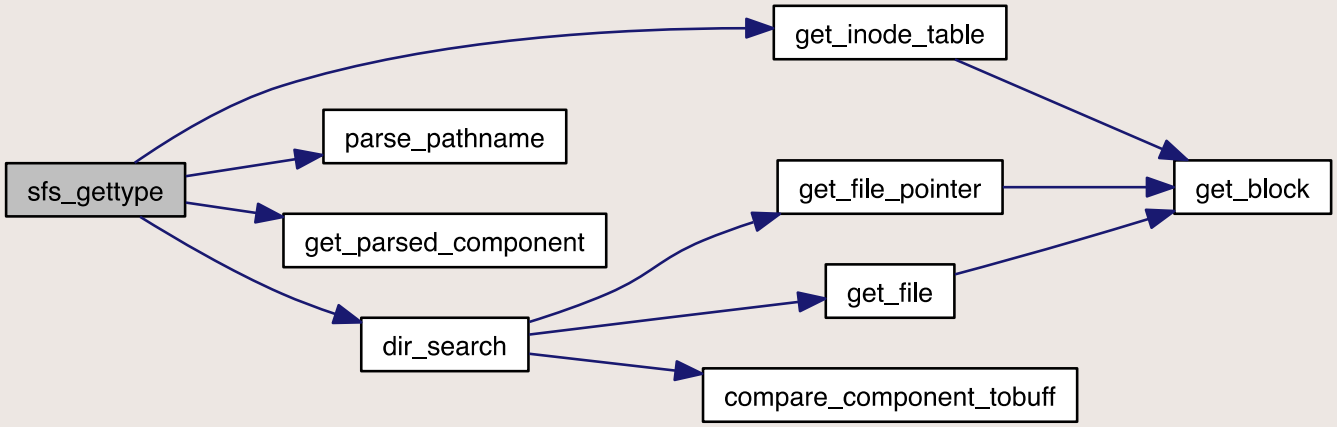
Initialize Disk



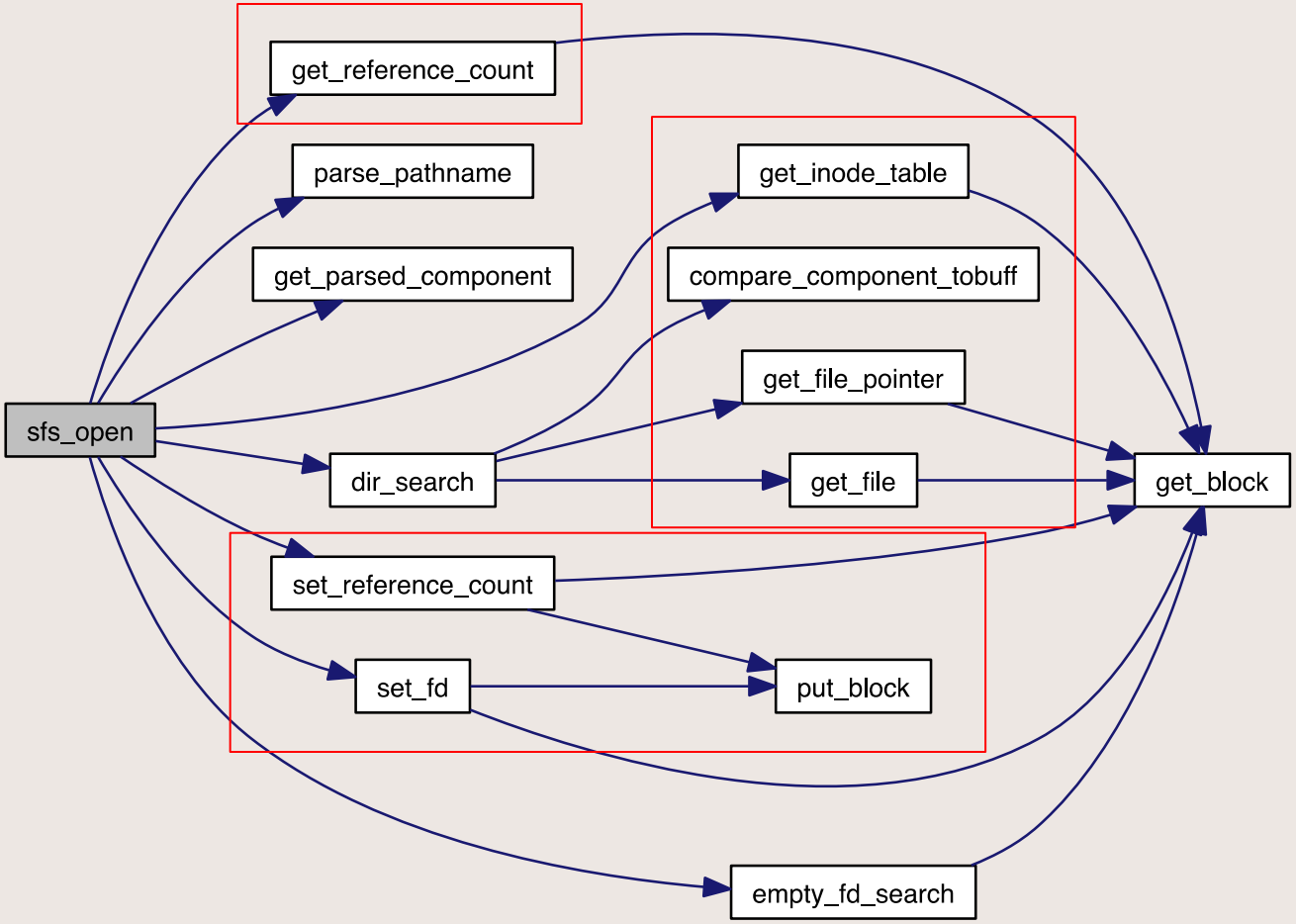
Get Size


parse_pathname
get_inode_table
get_parsed_component
sfs_getsize
get_file_pointer
get_block
dir_search
compare_component_tobuff
get_file

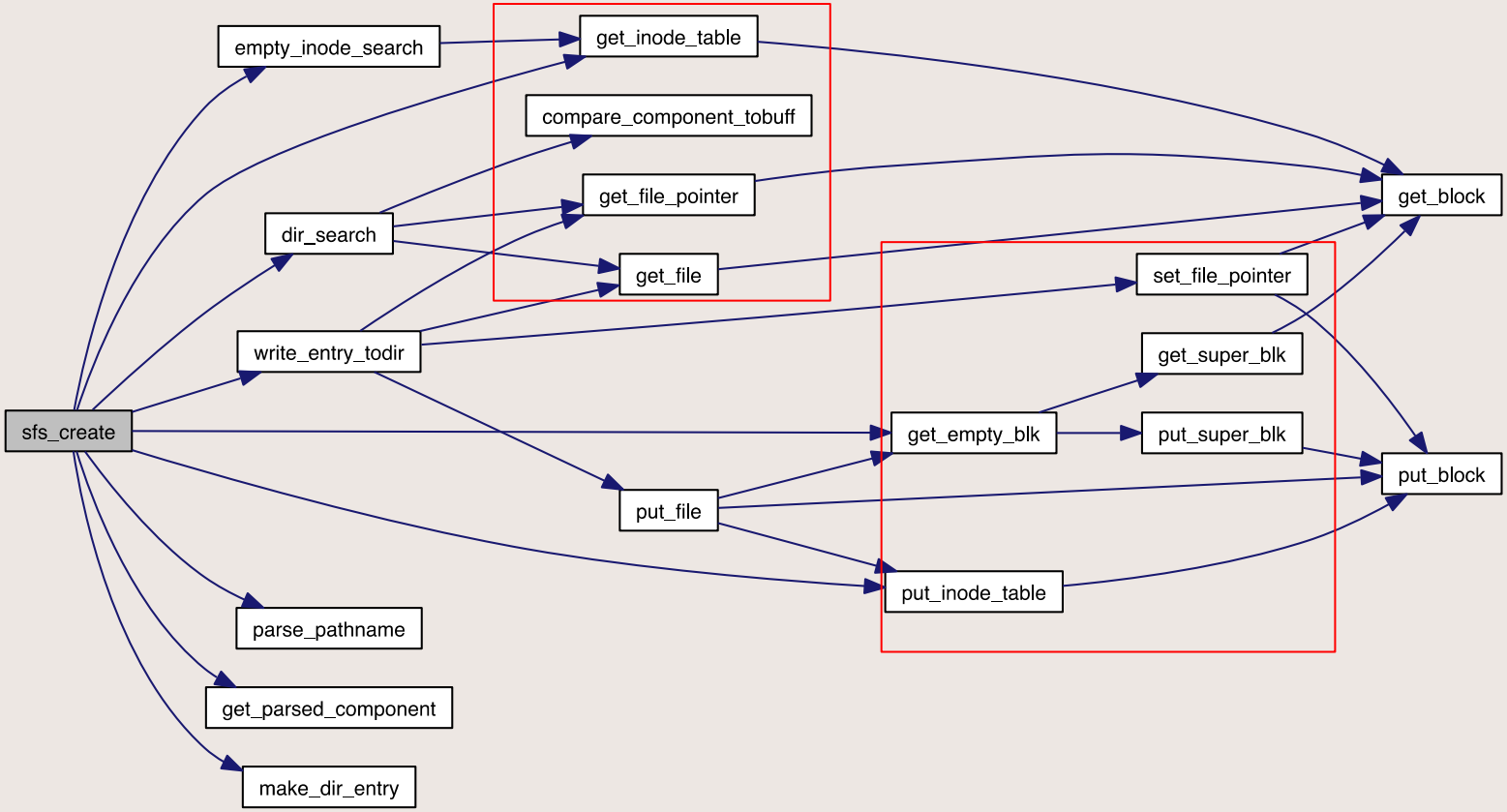
Get Type


get_inode_table
parse_pathname
sfs_gettype
get_file_pointer
get_block
get_parsed_component
get_file
dir_search
compare_component_tobuff

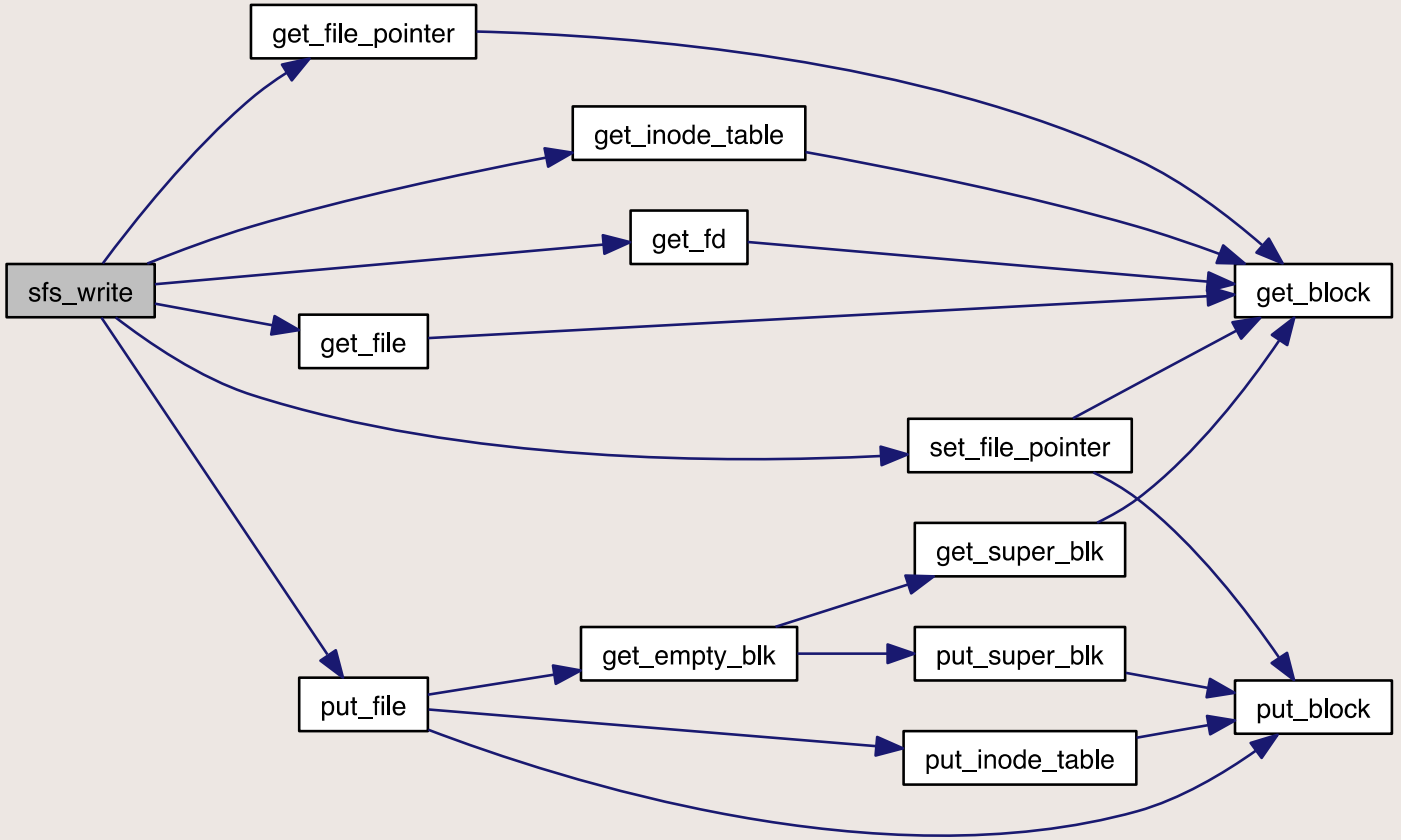
Open File


get_reference_count
parse_pathname
get_parsed_component
get_inode_table
compare_component_tobuff
get_file_pointer
sfs_open
dir_search
get_file
get_block
set_reference_count
set_fd
put_block
empty_fd_search

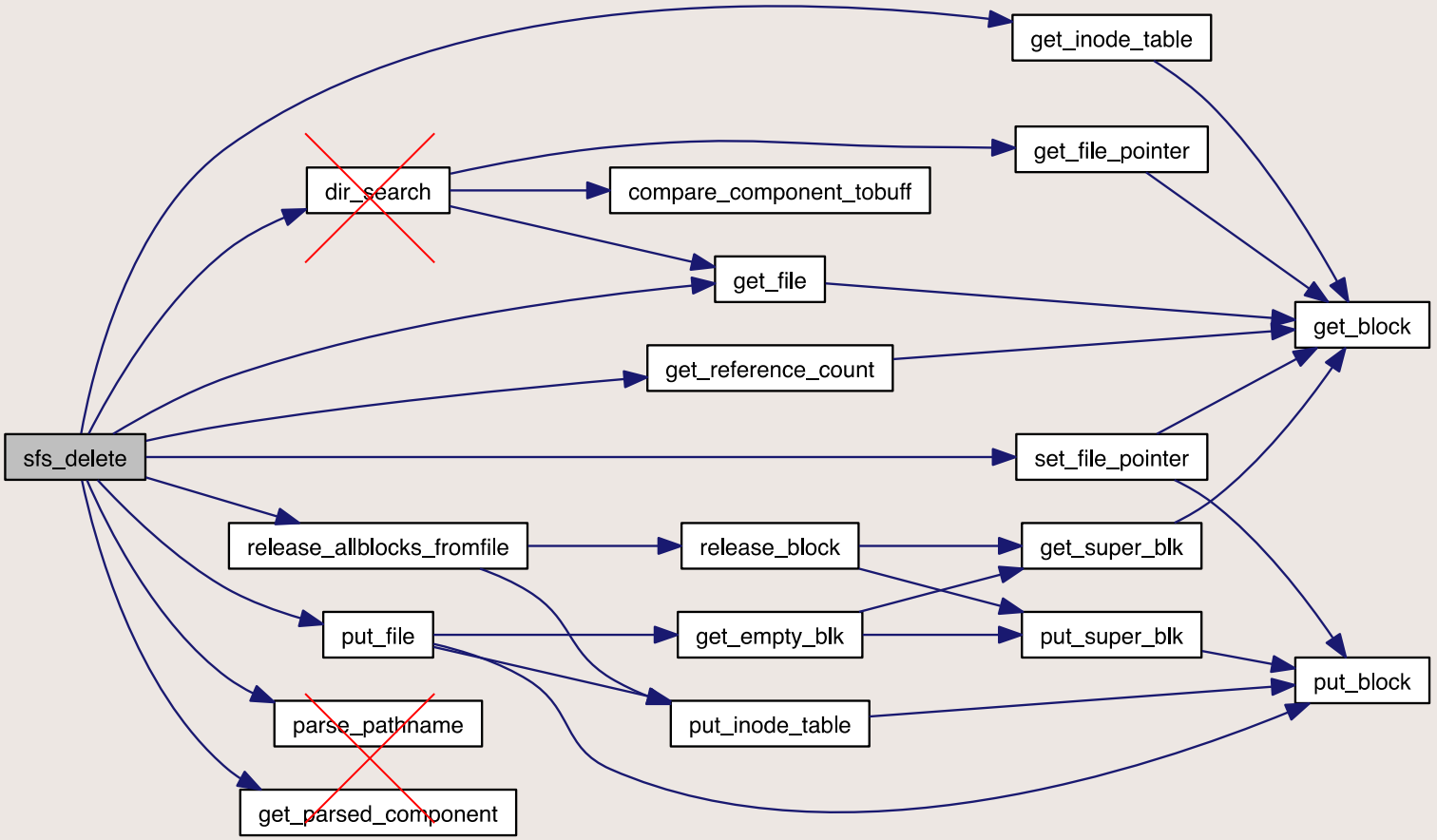
Create File


empty_inode_search
get_inode_table
compare_component_tobuff
get_file_pointer
get_block
dir_search
get_file
set_file_pointer
write_entry_todir
get_super_blk
sfs_create
get_empty_blk
put_super_blk
put_block
put_file
put_inode_table
parse_pathname
get_parsed_component
make_dir_entry

Write File


get_file_pointer
get_inode_table
get_fd
sfs_write
get_block
get_file
set_file_pointer
get_super_blk
get_empty_blk
put_super_blk
put_file
put_block
put_inode_table

Delete File


get_inode_table
get_file_pointer
dir_search
compare_component_tobuff
get_file
get_block
get_reference_count
sfs_delete
set_file_pointer
release_allblocks_fromfile
release_block
get_super_blk
put_file
get_empty_blk
put_super_blk
put_block
parse_pathname
put_inode_table
get_parsed_component

Simulated File System Tester