Code Review

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Reviewer(s) Name: Preston Duffield

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Project Name: Microshell

Reviewed File(s): builtin.c

## Code Review

The reviewer shall use the below table to document code defects and suggestions for improvement. Severity records how serious the infraction is: high (H), medium (M) or low (L). The first row (after the header) is an example. Remove it before submission. Check the appendix for a suggested C code review checklist.

|  |  |  |  |
| --- | --- | --- | --- |
| Function name | Line number | Severity | Brief Description |
| ~ | 0 | L | Add comments at the top of the file to explain the purpose of the code. |
| ~ | 14  16 | M | Remove duplicate includes for <dirent.h>. |
| touch | 241 | L | The file permission value ‘0666’) could be replaced with a named constant for better readability. |

The reviewer can add any other notes they have in the below space.

Most of your functions names are in snake\_case except the strequal function.

Add function-level documentation to describe the purpose, input parameters, and expected behavior of each function.

## Plan for improvement (to be written by the code author)

## Appendix – C Code Review Checklist

1. Commenting:  top of file, start of function, code that needs an explanation
2. Style is consistent and follows style guidelines
3. No redundant, dead, commented out, unused code & variables
4. Conditional expressions evaluate to a Boolean value; no assignments
5. Parentheses used to avoid operator precedence confusion
6. All switch statements have a default clause; preferably an error trap
7. Single point of exit from each function
8. Loop entry and exit conditions correct; minimum continue/break complexity
9. Conditionals should be minimally nested (generally only one or two deep)
10. Are "magic numbers" avoided? (use named constants rather than numbers)
11. Variables have well-chosen names and are initialized at definition
12. Input parameter checking is done
13. Error handling for function returns is appropriate
14. Null pointers, division by zero, null strings, boundary conditions handled
15. Buffer overflow safety (bound checking, avoid unsafe string operations)
16. Large arrays are dynamically allocated on the heap.
17. Pointer variables are named in a consistent fashion.
18. Pointers are initialized to NULL.
19. Pointers are tested for NULL before being referenced.
20. Dynamically allocated memory is deallocated when no longer needed.
21. Does the code match the detailed design (correct functionality)?
22. Is the code as simple, obvious, and easy to review as possible?