Testing and Verification Guide

Project: Space-to-Dash Renamer (fix-spaces.sh)

Field	Value
Script Name	fix-spaces.sh
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Environment	Ubuntu 22.04 (VirtualBox)
Date	October 18, 2025

Script Functionality Overview

The fix-spaces.sh script recursively renames files and/or directories by replacing spaces in their names with dashes (-). It supports selective renaming via flags:

Supported Features

- -f → Rename **files only**

- -d → Rename **directories only**

- -f -d → Rename **both files and directories**

- Handles **multiple consecutive spaces**

- Skips **special directories** (. and ..)

- Validates **directory existence**

- Skips **non-writable paths**

- Avoids overwriting existing files

- Uses modular helper functions:

    o pathname(), basename(), find_files(), find_dirs(), my_rename()

Test Setup Instructions

Step 1: Prepare the Environment

Place the following in the same directory:

- fix-spaces.sh (your main script)

- test_suite_fix_spaces.sh (automated test harness)

Make both scripts executable:

chmod +x fix-spaces.sh

chmod +x test_suite_fix_spaces.sh

Step 2: Run the Test Suite

./test_suite_fix_spaces.sh fix-spaces.sh

Optional: Enable verbose logging by setting SHOW_INFO=true inside the test suite.

Test Coverage Summary

Test ID	Category	Description	Status
T01	Script Existence	Checks if script file exists	☑ Passed
T02	Executable Permission	Ensures script is executable	☑ Passed
T03	Syntax Validation	Checks for syntax errors	☑ Passed
T04–T10	Error Handling	Tests invalid usage scenarios	☑ Passed
T11	-f Flag	Renames files only	☑ Passed
T12	-d Flag	Renames directories only	☑ Passed
T13	-f -d Combined	Renames both files and directories	☑ Passed
T14	Multiple Spaces	Handles multiple consecutive spaces	☑ Passed
T15	Normal Files	Leaves non-space files untouched	☑ Passed
T16	Nested Directories	Processes deeply nested structures	☑ Passed
T17	Temporary File Check	Ensures no temp files are created	☑ Passed
T18	Read-Only Directory Handling	Skips renaming in non-writable paths	☑ Passed

Manual Sanity Checks

Command Example	Expected Behavior
./fix-spaces.sh -f TestDir	Renames files with spaces to dashes
./fix-spaces.sh -d TestDir	Renames directories with spaces to dashes
./fix-spaces.sh -f -d TestDir	Renames both files and directories
./fix-spaces.sh -f .	Rejects current directory
./fix-spaces.sh -f NonExistentDir	Rejects invalid directory

Sample Directory Structure (Before and After)

Before

TestDir/

├── a b

├── E F/

| └── G H/

| └── J   K/

| └── a b

After -f -d

TestDir/

├── a-b

├── E-F/

| └── G-H/

| └── J----K/

| └── a-b

Final Test Result Summary

- **Total Tests**: 18
- **Passed**: 18
- **Failed**: 0
- **Estimated Points**: 100 / 100
- **Grade Estimate**: A Range

Cleanup

All test directories and files are automatically removed after execution. No manual cleanup is required.

Result Ubuntu Linux Machine:

./test_suite_fix_spaces.sh fix-spaces.sh

```
sanjeet@sanjeet-VirtualBox:~/LinuxProgramming/scripting/fixspace$ ./test_suite_fix_spaces.sh fix-spaces.sh
==================================================
[TEST] Checking if script exists
[PASS] Script exists
[TEST] Making script executable
[PASS] Script made executable
[TEST] Checking script syntax
[PASS] Script syntax is valid
[TEST] No arguments
[PASS] Exit code correct (expected 1, got 1)
[TEST] No directory specified
[PASS] Exit code correct (expected 1, got 1)
[TEST] Current directory
[PASS] Exit code correct (expected 1, got 1)
[TEST] Parent directory
[PASS] Exit code correct (expected 1, got 1)
[TEST] No flags specified
[PASS] Exit code correct (expected 1, got 1)
[TEST] Invalid flag
[PASS] Exit code correct (expected 1, got 1)
[TEST] Non-existent directory
[PASS] Exit code correct (expected 1, got 1)
[TEST] Testing -f (files only) option
[PASS] Files renamed, directories unchanged (-f option works)
[TEST] Testing -d (directories only) option
[PASS] Directories renamed, files unchanged (-d option works)
[TEST] Testing -f -d (both files and directories) option
[PASS] Both files and directories renamed (-f -d option works)
[TEST] Testing multiple consecutive spaces replacement
[PASS] Multiple spaces correctly replaced with multiple dashes
[TEST] Testing that files without spaces are unchanged
[PASS] Files without spaces remain unchanged
[TEST] Testing deeply nested structure processing
[PASS] Deeply nested structures processed correctly
[TEST] Checking for temporary file usage
[PASS] No temporary files detected
[TEST] Testing read-only directory handling
[PASS] Permission issues handled gracefully
==================================================
Tests Passed: 18
Tests Failed: 0
Estimated Points: 100 / 100
Grade Estimate: A range
[PASS] All tests passed!
```