



Red Hat Enterprise Linux Release 9.2 Manual Pages on 'exit.3' command

\$ man exit.3

EXIT(3) Linux Programmer's Manual EXIT(3)

NAME

exit - cause normal process termination

SYNOPSIS

```
#include <stdlib.h>

void exit(int status);
```

DESCRIPTION

The `exit()` function causes normal process termination and the least significant byte of status (i.e., `status & 0xFF`) is returned to the parent (see `wait(2)`).

All functions registered with `atexit(3)` and `on_exit(3)` are called, in the reverse order of their registration. (It is possible for one of these functions to use `atexit(3)` or `on_exit(3)` to register an additional function to be executed during exit processing; the new registration is added to the front of the list of functions that remain to be called.) If one of these functions does not return (e.g., it calls `_exit(2)`, or kills itself with a signal), then none of the remaining functions is called, and further exit processing (in particular, flushing of `stdio(3)` streams) is abandoned. If a function has been registered multiple times using `atexit(3)` or `on_exit(3)`, then it is called as many times as it was registered.

All open `stdio(3)` streams are flushed and closed. Files created by `tmpfile(3)` are removed.

The C standard specifies two constants, EXIT_SUCCESS and EXIT_FAILURE, that may be passed to exit() to indicate successful or unsuccessful termination, respectively.

RETURN VALUE

The exit() function does not return.

ATTRIBUTES

For an explanation of the terms used in this section, see attributes(7).

Interface Attribute Value

exit() Thread safety MT-Unsafe race:exit

The exit() function uses a global variable that is not protected, so it is not thread-safe.

CONFORMING TO

POSIX.1-2001, POSIX.1-2008, C89, C99, SVr4, 4.3BSD.

NOTES

The behavior is undefined if one of the functions registered using atexit(3) and on_exit(3) calls either exit() or longjmp(3). Note that a call to execve(2) removes registrations created using atexit(3) and on_exit(3).

The use of EXIT_SUCCESS and EXIT_FAILURE is slightly more portable (to non-UNIX environments) than the use of 0 and some nonzero value like 1 or -1. In particular, VMS uses a different convention.

BSD has attempted to standardize exit codes (which some C libraries such as the GNU C library have also adopted); see the file <sysexit.h>.

After exit(), the exit status must be transmitted to the parent process. There are three cases:

If the parent has set SA_NOCLDWAIT, or has set the SIGCHLD handler to SIG_IGN, the status is discarded and the child dies immediately.

If the parent was waiting on the child, it is notified of the exit

status and the child dies immediately.

? Otherwise, the child becomes a "zombie" process: most of the process resources are recycled, but a slot containing minimal information about the child process (termination status, resource usage statistics) is retained in process table. This allows the parent to subsequently use `waitpid(2)` (or similar) to learn the termination status of the child; at that point the zombie process slot is released.

If the implementation supports the `SIGCHLD` signal, this signal is sent to the parent. If the parent has set `SA_NOCLDWAIT`, it is undefined whether a `SIGCHLD` signal is sent.

Signals sent to other processes

If the exiting process is a session leader and its controlling terminal is the controlling terminal of the session, then each process in the foreground process group of this controlling terminal is sent a `SIGHUP` signal, and the terminal is disassociated from this session, allowing it to be acquired by a new controlling process.

If the exit of the process causes a process group to become orphaned, and if any member of the newly orphaned process group is stopped, then a `SIGHUP` signal followed by a `SIGCONT` signal will be sent to each process in this process group. See `setpgid(2)` for an explanation of orphaned process groups.

Except in the above cases, where the signalled processes may be children of the terminating process, termination of a process does not in general cause a signal to be sent to children of that process. However, a process can use the `prctl(2)` `PR_SET_PDEATHSIG` operation to arrange that it receives a signal if its parent terminates.

SEE ALSO

`_exit(2)`, `get_robust_list(2)`, `setpgid(2)`, `wait(2)`, `atexit(3)`, `on_exit(3)`, `tmpfile(3)`

COLOPHON

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