backtrace(3) — Linux manual page

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NAME top

backtrace, backtrace_symbols, backtrace_symbols_fd - support for application self-debugging

LIBRARY top

Standard C library (libc, -lc)

SYNOPSIS top

```
#include <execinfo.h>

int backtrace(void *buffer[.size], int size);

char **backtrace_symbols(void *const buffer[.size], int size);
void backtrace_symbols_fd(void *const buffer[.size], int size, int fd);
```

DESCRIPTION top

backtrace() returns a backtrace for the calling program, in the array pointed to by buffer. A backtrace is the series of currently active function calls for the program. Each item in the array pointed to by buffer is of type void *, and is the return address from the corresponding stack frame. The size argument specifies the maximum number of addresses that can be stored in buffer. If the backtrace is larger than size, then the addresses corresponding to the size most recent function calls are returned; to obtain the complete backtrace, make sure that buffer and size are large enough.

Given the set of addresses returned by backtrace() in buffer, backtrace_symbols() translates the addresses into an array of strings that describe the addresses symbolically. The size argument specifies the number of addresses in buffer. The symbolic representation of each address consists of the function name (if this can be determined), a hexadecimal offset into the function, and the actual return address (in hexadecimal). The address of the array of string pointers is returned as the function result of backtrace_symbols(). This array is malloc(3)ed by backtrace_symbols(), and must be freed by the caller. (The strings pointed to by the array of pointers need not and should not be freed.)

backtrace_symbols_fd() takes the same buffer and size arguments as backtrace_symbols(), but instead of returning an array of strings to the caller, it writes the strings, one per line, to the file descriptor fd. backtrace_symbols_fd() does not call malloc(3), and so can be employed in situations where the latter function might fail, but see NOTES.

RETURN VALUE top

backtrace() returns the number of addresses returned in buffer, which is not greater than size. If the return value is less than size, then the full backtrace was stored; if it is equal to size, then it may have been truncated, in which case the addresses of the oldest stack frames are not returned.

On success, backtrace_symbols() returns a pointer to the array malloc(3)ed by the call; on error, NULL is returned.

ATTRIBUTES top

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

Interface	Attribute	Value
backtrace(), backtrace_symbols(), backtrace_symbols_fd()	Thread safety	MT-Safe

STANDARDS top

GNU.

HISTORY top

glibc 2.1.