SYSTEM CALL

Operating system and System programming individual assignment

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Introduction

A system call is a function that allows a process to communicate with the Linux kernel. It's just a programmatic way for a computer program to order a facility from the operating system's kernel. System calls expose the operating system's resources to user programs through an API (Application Programming Interface).

There are 116 system calls in Linux.one of those is the delete_module system call.

System call name: delete_module()

1. What / Why / How, this system call?

What is this system call?

- The delete_module() system call attempts to remove the unused loadable module entry identified by name.
- If the module has an exit function, then that function is executed before unloading the module. The flags argument is used to modify the behavior of the system call, as described below. This system call requires privilege.

Why this system call?

- Module removal is attempted according to the following rules:

1. If there are other loaded modules that depend on this module, then the call fails.

2. Otherwise, if the reference count for the module (i.e., the number of processes currently using the module) is zero, then the module is immediately unloaded.

3. If a module has a nonzero reference count, then the behavior depends on the bits set in *flags*.

How?

- ✓ *int syscall(SYS_delete_module, const char *name, unsigned int flags);*

  On success, zero is returned. On error, -1 is returned and errno is set to indicate the error.

2. Parameters and flags

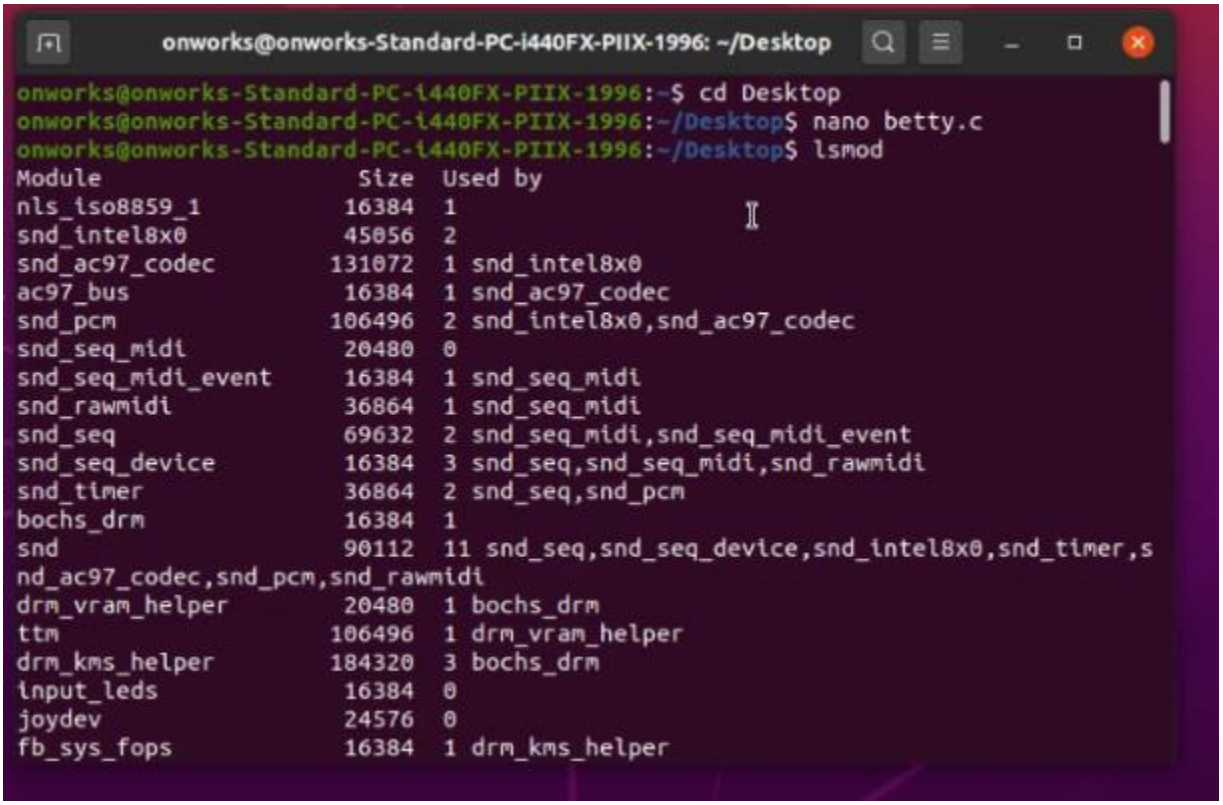
This system call has two parameters

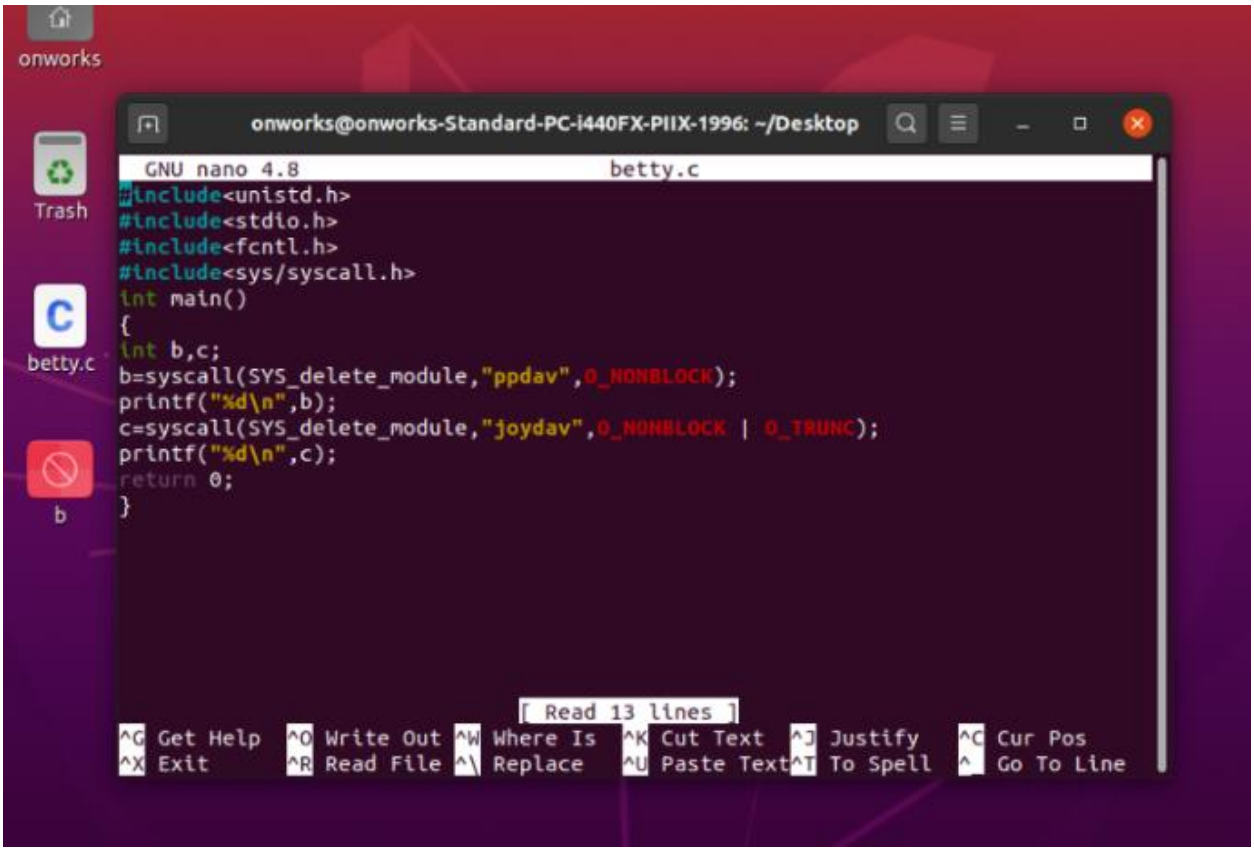
1) name – it is a pointer to string with name of module
2) flags – this modify behavior of unload

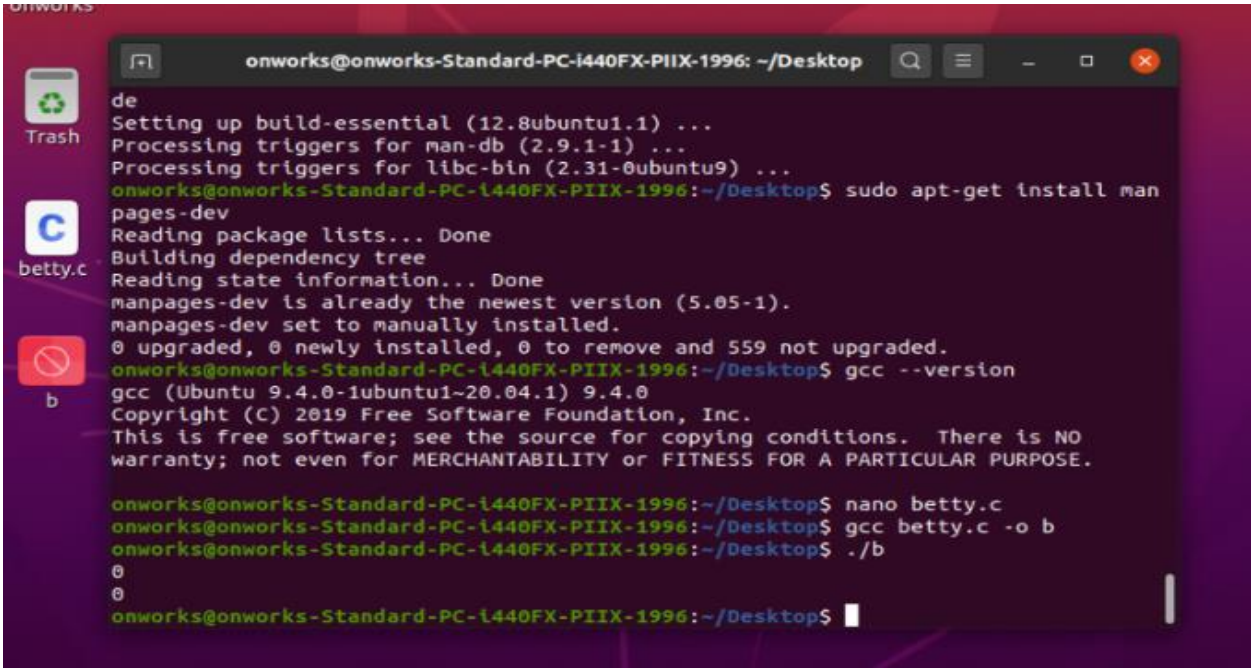
   It has two flags

- ✓ O_NONBLOCK – immediately return from syscall
- ✓ O_NONBLOCK | O_TRUNC – unload module immediately even if reference count is not zero

3. List the flags, their purpose with code implementation (give Example source code with output)







- As we can see it displayed 0 which shows success.