# **CS446 Lab 3 - Process Representation in Linux**

Labs that are not scheduled for a Lab Test are not mandatory. These are practice labs, designed to help you on your assignments.

## **Outline**

Processes in Linux are represented by the task\_struct data structure as shown in the textbook in chapter 3, page 111 (process representation in Linux). This data structure is defined in the [sched.h](http://lxr.linux.no/#linux+v3.11/include/linux/sched.h) header file. Take a look at the definition of this data structure and study the following members of this structure:

pid, state, flag, rt\_priority (runtime priority), process (process policy) and tgid (task group id).

In this lab, you will write a Linux kernel module which outputs the values of the above listed members to the kernel log buffer for the init task (also called the swapper/idle process) in a Linux system, when the module is loaded into the kernel.

Print the output of the dmesg command to a file.

**Note:**

* The task\_struct data structure for the Linux swapper (idle process) is called init\_task, and it has a pid = 0. It is a task scheduled to run when no other process exists to run on the system.

If you need help with creating/loading Linux kernel modules see Lab 2.

See below for a sample output:

Loading Module

[ 2300.008729] init\_task pid:0

[ 2300.008733] init\_task state:0

[ 2300.008736] init\_task flags:2097152

[ 2300.008740] init\_task runtime priority:0

[ 2300.008743] init\_task process policy:0

[ 2300.008745] init\_task tgid:0