Registering a Character Device number

Spoken Tutorial Project
https://spoken-tutorial.org
National Mission on Education through ICT
http://sakshat.ac.in

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Learning Objective

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- **Dynamically allocate the major and minor numbers to a device**

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System Requirements

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- **VirtualBox 5.2**

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- **gedit text editor**

Prerequisites

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- **C programming language**

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- **Basics of Linux kernel**

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- C programming language
- Basics of Linux kernel

If not, then go through the C/C++ and Linux spoken tutorials on https://spoken-tutorial.org

Device file in Linux

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- **Each device is represented as a file in Linux**

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- **The device files are located under the dev directory**

Device file in Linux

- Each device is represented as a file in Linux
- The device files are located under the dev directory
- Each device file in Linux has a unique number associated with it

Internal representation of device number

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- **The kernel uses the dev_t type variable to hold major and minor numbers**

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- **The size of the dev_t is 32-bit**

Internal representation of device number

- The kernel uses the dev_t type variable to hold major and minor numbers
- The size of the dev_t is 32-bit
- 12 bits are used for major number and 20 bits are used for minor numbers

Code files

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- **The files used in this tutorial are available in the Code Files link on this tutorial page**

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- Make a copy and then use them while practising

Summary

- **Dynamically allocate the major and minor numbers to a device**
- **Register a new character device inside the kernel**

Assignment

1. Open the simple_driver.c file
2. Allocate the device number using the kernel function
3. Change the name of the device

Assignment (cont.)

4. **Compile and load the driver into the kernel**
5. **See the registered device in the procfs**
6. **Unload the driver from the kernel**

About the Spoken Tutorial Project

- Watch the video available at https://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial Project
- If you do not have good bandwidth, you can download and watch it

Spoken Tutorial Workshop

The Spoken Tutorial Project Team

- **Conducts workshops using spoken tutorials**
- **Gives certificates on passing online tests**
- **For more details, please write to contact@spoken-tutorial.org**

Forum questions

- **Questions in THIS Spoken Tutorial?**
- **Visit**

  https://forums.spoken-tutorial.org/
- **Choose the minute and second where you have the question**
- **Explain your question briefly**
- **The Spoken Tutorial project will ensure an answer**

You will have to register to ask questions

Forum to specific questions

- Questions not related to the Spoken Tutorial?
- Do you have general / technical questions on the Embedded Linux Device Driver?
- Please visit the FOSSEE Forum

  https://forums.fossee.in/
- Choose the Software and post your question

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THANK YOU!

For more Information, visit our website https://fossee.in/