Kernel Synchronization

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

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Learning Objective

- **Synchronization techniques provided by Linux kernel**

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- **Binary Semaphore technique**

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- **Synchronization techniques provided by Linux kernel**
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- **How to control the shared resource from concurrent access**

System Requirements

- **VirtualBox 5.2**

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- **Ubuntu Linux 18.04 LTS Operating System**

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

Synchronization mechanism

- **It is a mechanism used to protect the shared resources from concurrent access**

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- **The kernel provides synchronization mechanisms for system and kernel programming**

Types of Synchronization

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- **Spinlock** - These are used in code that is not permitted to sleep.

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- **Semaphore** -This can be used to lock threads. Such threads sleep until they are activated again.

- **Mutex** - It is the same as binary semaphore. It prevents simultaneous activation of multiple threads.

Code files

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

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Summary

- **Synchronization techniques provided by the Linux kernel**
- **Binary semaphore technique**
- **How to control the shared resources from concurrent access**

Assignment

1. Change the **Data** in the **uwrite.c**
2. Compile, load the driver and execute the user programs
3. See the output using **dmesg** command
4. 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

Acknowledgements

Spoken Tutorial project is supported by

THANK YOU!

For more Information, visit our website
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