Linux Kernel Device Driver Development – Part 1

Course Content

- Installing the Linux on Virtual machine.
- Introduction to Linux Kernel
- Code compilation
- Makefile creation
- Hello world Module
- Module utilities
- Character Driver
- Creating /sys and /proc entries using kernel module
- Submitting your First patch to Linux kernel source.

Makefile creation

Features

- Automate the repetitive executing commands
- Provided by make utility and simple to execute by running ***make***
- Structured creation
- Uses Timestamp for invocation, only modified files are rebuilt.
- Manages multiple source files.
- Helps in creating custom build system.

Makefile creation

Syntax

- Target, source based structure

  target file : sourcefiles

  <tab space> command

For example.

hello : hello.c

gcc hello.c – o hello

Makefile creation

- **make**
  - This Command reads the Makefile in the source directory and executes the commands.

- **make –f customMakefile**
  - This Command reads the custom Makefile in the source directory and executes the commands.

- **make –C <path to directory>**
  - Makefile present in other directories can be used .
  - We use this extensively to build the custom kernel module and use the makefile of the kernel source.