Intro to Linux

1.7.2 - Software Configuration

Configuring Kernel Options

The process of customizing the settings and features of the OS's kernel, which is the core component responsible for managing system resources and providing a bridge between software and hardware

- Kernel configuration involves selecting various options, modules, and parameters that determine how the kernel interacts with hardware, what features are enabled or disabled, and how the system behaves in different scenarios

Parameters

Settings and options that can be adjusted to customize the behavior of the Linux kernel

- `sysctl` allows users to interact with the Linux kernel runtime parameters
- /etc/sysctl.conf is a configuration file where users can set various kernel parameters that persist across reboots

Modules

- Pieces of code that can be loaded and unloaded into the kernel of an OS at runtime

- Monolithic kernels have all necessary functionalities included in a single, static kernel image

- Modular kernels allow for the addition and removal of specific functionalities as needed, without rebooting the system

Module Commands

- **`lsmod`** lists all currently loaded kernel modules

- **`modprobe`** allows the automatic loading and unloading of modules based on dependency information
  - Typically read from /etc/modprobe.conf or /etc/modprobe.d/

- **`modinfo`** provides information about a kernel module, including description, dependencies, and parameters

- **`insmod`** manually inserts a module into the kernel

- **`rmmod`** unloads a kernel module