

**Date:**

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## **Experiment No 1:**

### **Demonstrating the Use of OS Installer (Anaconda) and Boot Loaders**

#### **Aim**

To demonstrate the installation of an operating system using the Anaconda installer and to explore the functionality of boot loaders, boot options, and file locations in a Linux environment.

#### **Theory**

Operating system installation is a critical process that involves setting up an OS on a computer's hardware. The Anaconda installer is a popular installation tool for many Linux distributions, especially Red Hat-based systems. Boot loaders, such as GRUB (Grand Unified Bootloader), are essential software that loads the operating system into memory when the computer starts. Understanding boot options and file locations is crucial for system administration and troubleshooting.

#### **1. Anaconda Installer:**

- Anaconda is the installation program used by Fedora, Red Hat Enterprise Linux (RHEL), and other derivatives. It provides a graphical and text-based interface for installing the OS, configuring storage, and setting up user accounts and system services.

#### **2. Boot Loaders:**

- A boot loader is a program that loads the operating system kernel into memory and starts its execution. Common boot loaders include GRUB and LILO (Linux Loader).
- GRUB is the most widely used boot loader in Linux systems, supporting multiple operating systems and providing a menu to select which OS to boot.

#### **3. Boot Options:**

- Boot options allow users to pass parameters to the kernel at boot time. These options can be used to troubleshoot or configure the system behavior during startup.
- Boot options are typically edited in the GRUB menu or configuration file.

#### **4. File Locations:**

- In Linux systems, critical files related to the boot process are located in specific directories. Understanding these locations helps in managing and troubleshooting the boot process.

#### **Materials**

- A computer or virtual machine with a Red Hat-based Linux distribution (e.g., Fedora, CentOS, RHEL)
- An installation medium (e.g., USB drive, CD/DVD) with the Linux distribution

- Internet connection (optional, for downloading updates)

## Procedure

- 1. Preparing the Installation Medium:**
  - Download the ISO image of the chosen Linux distribution.
  - Create a bootable USB drive or burn the ISO to a CD/DVD.
- 2. Booting the Installer:**
  - Insert the installation medium into the computer and restart.
  - Access the BIOS/UEFI settings and configure the system to boot from the installation medium.
- 3. Using the Anaconda Installer:**
  - When the Anaconda installer starts, choose the installation language and proceed.
  - Configure the installation destination (hard drive), network settings, and user accounts.
  - Select the software packages to install.
  - Begin the installation process and wait for it to complete.
- 4. Exploring Boot Loaders:**
  - Once the installation is complete, reboot the system.
  - Access the GRUB menu by pressing the appropriate key during startup (usually Esc or Shift).
  - Observe the available boot options and select the installed Linux OS to boot.
- 5. Editing Boot Options:**
  - In the GRUB menu, press 'e' to edit boot options for the selected entry.
  - Add or modify kernel parameters as needed.
  - Press Ctrl+X or F10 to boot with the modified options.
- 6. Identifying File Locations:**
  - After booting into the Linux system, open a terminal.
  - Explore key file locations:
    - **/boot:** Contains the kernel, initramfs, and GRUB configuration files.
    - **/etc/grub.d:** Scripts used to generate the GRUB configuration.
    - **/etc/default/grub:** Contains the default settings for GRUB.
    - **/var/log:** Contains log files that may include installation logs.

## Conclusion:

This experiment demonstrates the use of the Anaconda installer to set up a Linux operating system, the role of boot loaders like GRUB in the boot process, and how to configure boot options.