

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING TRAINING TR-102 REPORT DAY 3 25 JUNE 2025

Overview:

The third day of training focused on Linux — an open-source operating system that forms the backbone of most modern technologies, including Artificial Intelligence, Cloud Computing, and Cybersecurity. We explored the Linux environment, understood how it differs from Windows, and learned several essential Linux commands used for file management, navigation, and system operations. The session gave us hands-on experience in using the terminal (command-line interface) to interact with the system efficiently.

Learning Objectives:

- Understand the concept and structure of the Linux operating system.
- Learn about the Linux file system and its hierarchy.
- Execute basic Linux commands for navigation and file management.
- Understand the importance of Linux in Artificial Intelligence and development environments.

Introduction to Linux

LINUX

Linux is an open-source operating system modeled after UNIX. It is widely used in servers, embedded systems, mobile devices (like Android), and AI/ML development environments due to its flexibility, stability, and security.

Unlike Windows, which provides a graphical interface for every operation, Linux relies heavily on the command-line interface (CLI) for performing tasks. This allows users to automate processes and work efficiently with minimal resources.



Why is Linux Important?

1. Open Source and Free:

Linux is open source, meaning anyone can use, modify, and distribute it freely.

2. Security and Stability:

It provides excellent security and rarely crashes, making it ideal for servers and research systems.

3. Flexibility:

It supports customization — users can install only what they need.

4. Foundation for AI and Development:

Most data science and AI frameworks (like TensorFlow, PyTorch, and OpenCV) are optimized for Linux.

5. Command-Line Efficiency:

Tasks can be automated using shell scripts, increasing productivity for developers and researchers.

Basic Structure of Linux

The Linux File System is organized in a hierarchical structure starting from the root directory (/). Some important directories are:

Directory	Description
/home	Contains user files and folders
/bin	Contains essential command binaries
/etc	Configuration files
/var	Variable data files (logs, cache, etc.)
/usr	User programs & libraries

/tmp

Temporary files

/root

Home directory of the system
administrator (root user)

Conclusion:

Day 3 provided an excellent understanding of Linux basics and terminal commands. We learned how to navigate the Linux file system, manage files, and monitor system performance using the command line. This session emphasized how essential Linux is for developers, data scientists, and AI practitioners. With its open-source flexibility and command-line power, Linux remains the foundation of most modern computing and AI platforms.

