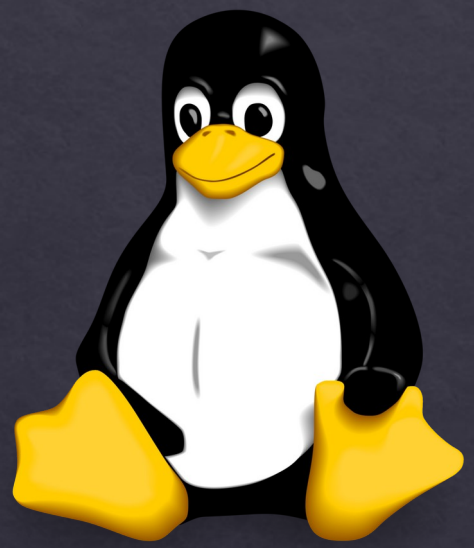

Linux Essentials for Cybersecurity

BASH Scripting

Scripting

- A script is a sequence of commands written in a scripting language to automate tasks.
- Unlike compiled programs, scripts are interpreted line by line by an interpreter.
- Used for automation, system administration, and data processing.

Popular Scripting Languages

Language	Use Cases
BASH	Linux automation, system management, cybersecurity
Python	General-purpose, automation, data science, penetration testing
Powershell	Windows system administration, automation
Perl	Text processing, system administration
Ruby	Web development, automation
JavaScript	Web scripting, client-side interactivity

So, Why BASH?

- Native to Linux – Comes pre-installed on most UNIX-based systems.
- Lightweight & fast – No additional dependencies needed.
- Ideal for System Administration – File management, process control, and automation.
- Used in penetration testing and ethical hacking for automation.
- Easily integrates with Linux commands and utilities.

Basic Script Structure

- Shebang (#!/bin/bash): specifies the interpreter
- # This is a comment
- Running scripts
  - bash script_name.sh
  - ./script_name.sh (current dir. is not included in $PATH)
  - /full/path/to/script.sh

Configuration Files

- Special files that store settings for the shell, system processes, and applications.
- Used to customize user environments and store preferences.
- Typically located in the home directory (~) or system-wide directories like /etc/

.bashrc

- Runs every time a new terminal is opened (interactive, non-login shells).
- Uses:
  - Setting aliases (alias ll='ls -alF')
  - Defining environment variables (export PATH="$HOME/bin:$PATH")
  - Customizing the command prompt (PS1)
  - Running startup scripts or commands.

Handling Command Line Args.

Symbol	Meaning
$1, $2, $3, …	Positional parameters representing the 1st, 2nd, 3rd, etc., arguments passed to the script.
$@	Expands to all arguments as separate words
$*	Expands to all arguments as a single word
$#	The number of arguments passed to the script
$0	The script name itself