



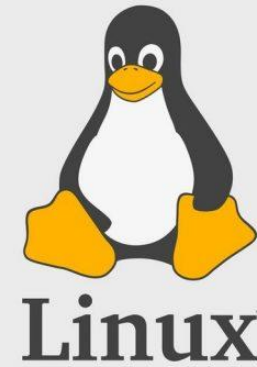
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Introduction to Linux



What we are going to cover

- What is Linux?
- How do we use Linux?
- What are Linux Distributions?
- Simple Linux commands
- What can you do with Linux?



What is Linux?

- Linux is an operating system written by volunteers called contributors
- Linux allows you to use computer hardware to do things
- The Linux ecosystem provides tools to run varied services such as web services or compute modules for advanced AI



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How do we use Linux?

Command Line

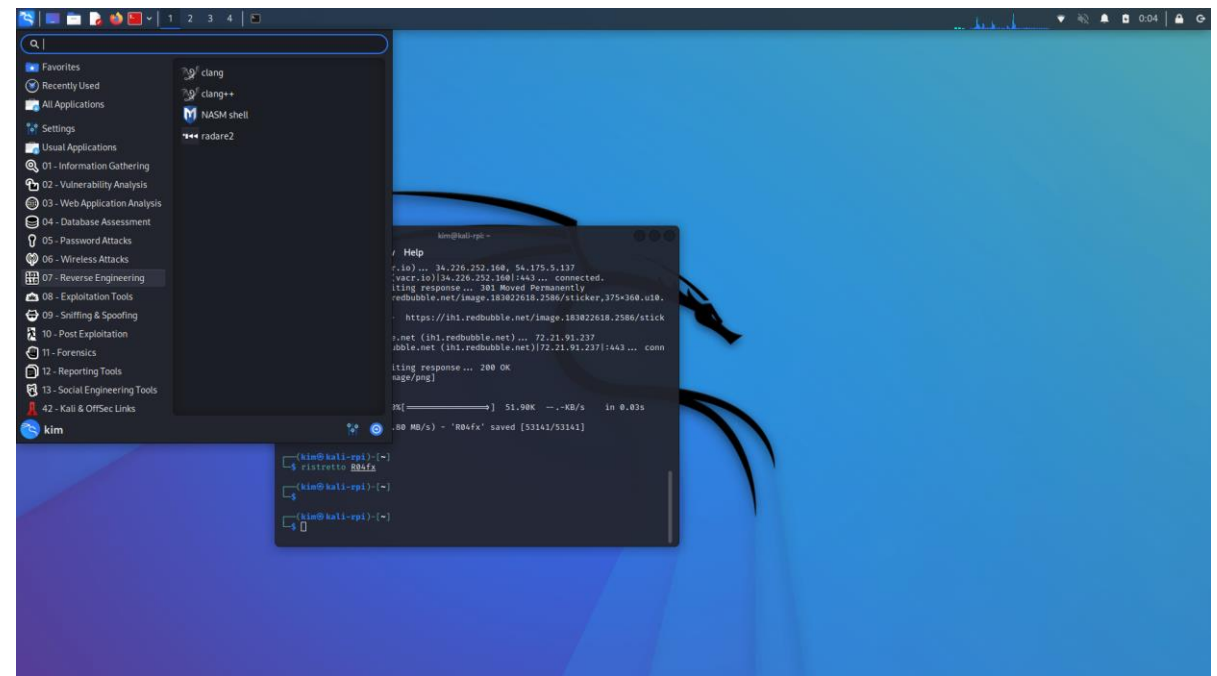
```
kim@kali-rpi: /proc
File Actions Edit View Help
CPU part      : 0xd08
CPU revision   : 3

processor      : 3
model name     : ARMv7 Processor rev 3 (v7l)
BogoMIPS      : 198.00
Features       : half thumb fastmult vfp edsp neon vfpv3 tls vfpv4 idiva idivt vfpd32 lpae evtstrm crc32
CPU implementer : 0x41
CPU architecture: 7
CPU variant    : 0x0
CPU part       : 0xd08
CPU revision   : 3

Hardware       : BCM2711
Revision       : d03114
Serial         : 1000000047f8e675
Model          : Raspberry Pi 4 Model B Rev 1.4

(kim@kali-rpi)-[/proc]
$ ls
1      10625 11      11109 12261 14      23337 23481 289    35      6428 8      921    device-tree latency_stats sysvipc
10     1070 110     11110 12262 15      23339 23482 29      3548 6573 80    93     diskstats loadavg thread-self
10021  10742 11002   11117 12280 1776    23358 23485 2900   3553 6632 82    94     driver meminfo tty
10031  10748 11006   11119 12281 1793    23359 23505 291    36     6730 824    95     execdomains misc uptime
1010   10752 11011   11129 12282 18      23362 23509 29126  4      6811 83    96     fb modules version
1013   1076 11025 11135 12299 1806    23366 23870 295    441 6839 86    971    filesystems mounts vmallocinfo
1018   10777 1103 11137 12340 18707    23371 239 29941 493 69 8791 982    fs net vmstat
102    10782 11030 1114 1242 19      23372 23913 3      496 6953 883 988    interrupts pagetypeinfo zoneinfo
1029   108 1104 11142 1246 2      23377 24 30341 498 70 888 992    iomem partitions
103    1084 1105 1117 1250 20      23378 25 307 499 71 889 998    ioports sched_debug
1032   10842 1106 11174 1254 2002    23379 25126 31730 5365 72 89    buddyinfo irq schedstat
1037   10846 11068 1118 1265 23      23380 25133 32      5407 73 9      kallsyms self
1041   10858 1108 11200 1270 23240    23381 2606 32132 5426 74 90    cgroups key-users softirqs
105    1086 11089 1121 13 23241 23382 263 32442 5706 7618 908    cmdline keys stat
1050   109 11093 114 13032 23242 23387 27987 33      580 7625 909    consoles kmsg swaps
1053   1091 11094 12 1304 23247 23423 28 3348 5886 775 910    cpu kpagecgroup sys
1057   10977 111 1200 1341 23309 23444 283 34 5933 784 914    cpuinfo sysrq-trigger
1058   10991 1110 1211 1342 23326 23465 284 3418 6011 786 916    crypto kpageflags
1061   10998 11108 1220 1347 23335 23474 2887 3427 6168 79 92
```

Graphical User Interface



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What is a Linux Distribution?

- A Distribution is a series of packages bundled together by a group of maintainers.
- The packages and the kernel (heart) make up a Distribution.
- Some Distributions are maintained by companies (Debian, Ubuntu, Red Hat, Oracle, SuSE)



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Simple Linux Command Reference

- **ls** : Lists the files in a directory
- **cd** : change directory
- **pwd** : shows the present working directory
- **cat** : concatenates a file – or displays it to the screen
- **less / more** : pagination of output
- **tar** : Tape ARchive. Old backup software, now used as a primitive way to package files.
- **cp / rm / mv** : copy, remove and move a file
- **compress / gzip / bzip2 / xv** : compression tools to make files smaller
- **touch** : create a file or change its timestamp
- **useradd** : create users
- **chown / chgrp** : change owner and group permissions on a file
- **awk / sed / grep** : modification of data in files or on the screen
- **echo** : repeats a command to the screen
- **Pipes “|, <, >”** : allow redirection of data between processes



What can you do with Linux?

- Android Cell Phones
- Super Computers
- Microcomputers
- Web Services
- Data Processing
- AI/ML
- Cloud Servers
- Databases
- Game Consoles
- Graphics Design
- Video Authoring
- Embedded Systems



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