Architecture of linux opera×

https://www.geeksforgeeks.org/architecture-of-linux-operating-system/

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Architecture of linux operating system

Fedora Linux Operating System

Gentoo Linux Operating System

History of Operating System
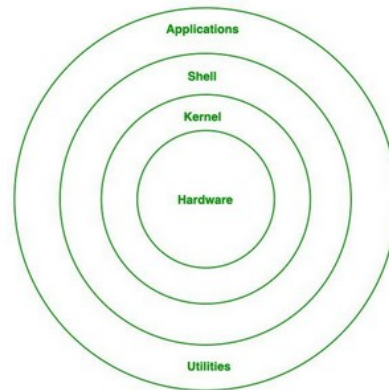
Is Linux a Kernel or an Operating System?

Functions of Operating System

Concurrency in Operating System

Architecture of a System

Like any operating system, Linux consists of software, computer programs, documentation, and hardware.

The main components of Linux operating system are: Application, Shell, Kernel, Hardware, Utilities

Computer Science
Interview Preparation

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Applications

Shell

Kernel

Hardware

Utilities

Linux operating system architecture

1. Kernel:

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Got It !

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```
Get:3 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-lib2to3 all 3.8.10-0ubuntu1~20.04 [76.3 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-distutils all 3.8.10-0ubuntu1~20.04 [141 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal/universe amd64 fish amd64 3.1.0-1.2 [843 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal/main amd64 javascript-common all 11 [6,066 B]
Get:7 http://archive.ubuntu.com/ubuntu focal/universe amd64 xsel amd64 1.2.0+git9bfc13d.20180109-3 [20.5 kB]
Fetched 2,776 kB in 2s (1,335 kB/s)
Selecting previously unselected package libjs-jquery.
(Reading database ... 316124 files and directories currently installed.)
Preparing to unpack .../0-libjs-jquery_3.3.1~dfsg-3_all.deb ...
Unpacking libjs-jquery (3.3.1~dfsg-3) ...
Selecting previously unselected package fish-common.
Preparing to unpack .../1-fish-common_3.1.0-1.2_all.deb ...
Unpacking fish-common (3.1.0-1.2) ...
Selecting previously unselected package python3-lib2to3.
Preparing to unpack .../2-python3-lib2to3_3.8.10-0ubuntu1~20.04_all.deb ...
Unpacking python3-lib2to3 (3.8.10-0ubuntu1~20.04) ...
Selecting previously unselected package python3-distutils.
Preparing to unpack .../3-python3-distutils_3.8.10-0ubuntu1~20.04_all.deb ...
Unpacking python3-distutils (3.8.10-0ubuntu1~20.04) ...
Selecting previously unselected package fish.
Preparing to unpack .../4-fish_3.1.0-1.2_amd64.deb ...
Unpacking fish (3.1.0-1.2) ...
Selecting previously unselected package javascript-common.
Preparing to unpack .../5-javascript-common_11_all.deb ...
Unpacking javascript-common (11) ...
Selecting previously unselected package xsel.
Preparing to unpack .../6-xsel_1.2.0+git9bfc13d.20180109-3_amd64.deb ...
Unpacking xsel (1.2.0+git9bfc13d.20180109-3) ...
Setting up javascript-common (11) ...
Setting up xsel (1.2.0+git9bfc13d.20180109-3) ...
Setting up libjs-jquery (3.3.1~dfsg-3) ...
Setting up python3-lib2to3 (3.8.10-0ubuntu1~20.04) ...
Setting up fish-common (3.1.0-1.2) ...
Setting up python3-distutils (3.8.10-0ubuntu1~20.04) ...
Setting up fish (3.1.0-1.2) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for doc-base (0.10.9) ...
Processing 1 added doc-base file...
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ fish
Welcome to fish, the friendly interactive shell
Type `help` for instructions on how to use fish
lab05-pc04@lab05pc04-H310M-S2-2-0 ~> sudo apt
```

File   Edit   View   Search   Terminal   Help

```
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ sudo su
root@lab05pc04-H310M-S2-2-0:/home/lab05-pc04# exit
exit
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ ^C
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ apt install fish
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  fish-common javascript-common libjs-jquery python3-distutils python3-lib2to3 xsel
Suggested packages:
  apache2 | lighttpd | httpd
The following NEW packages will be installed:
  fish fish-common javascript-common libjs-jquery python3-distutils python3-lib2to3 xsel
0 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
Need to get 2,776 kB of archives.
After this operation, 18.2 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 libjs-jquery all 3.3.1~dfsg-3 [329 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal/universe amd64 fish-common all 3.1.0-1.2 [1,360 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-lib2to3 all 3.8.10-0ubuntu1~20.04 [76.3 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-distutils all 3.8.10-0ubuntu1~20.04 [141 kB]
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Unpacking fish-common (3.1.0-1.2) ...
Selecting previously unselected package python3-lib2to3.
Preparing to unpack .../2-python3-lib2to3_3.8.10-0ubuntu1~20.04_all.deb ...
Unpacking python3-lib2to3 (3.8.10-0ubuntu1~20.04) ...
Selecting previously unselected package python3-distutils.
Preparing to unpack .../3-python3-distutils_3.8.10-0ubuntu1~20.04_all.deb ...
Unpacking python3-distutils (3.8.10-0ubuntu1~20.04) ...
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Unpacking javascript-common (11) ...
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Preparing to unpack .../6-xsel_1.2.0+git9bfc13d.20180109-3_amd64.deb ...
Unpacking xsel (1.2.0+git9bfc13d.20180109-3) ...
```

```
$ bash
lab05-pc04@lab05pc04-H310M-S2-2-0:~$
```

File   Edit   View   Search   Terminal   Help

```
GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
Full documentation at: <https://www.gnu.org/software/coreutils/rm>
or available locally via: info '(coreutils) rm invocation'
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ rmdir -p olddata
rmdir: failed to remove 'olddata': Directory not empty
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ man rmdir
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ rmdir -polddata/data/abc
rmdir: invalid option -- 'o'
Try 'rmdir --help' for more information.
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ rmdir -p olddata/data/abc
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cat > imp
^Z
[3]+  Stopped                 cat > imp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ touch imp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ rm imp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ rm demo
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ rm -f important.txt
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -p ~/happy/* /tmp
cp: cannot stat '/home/lab05-pc04/happy/*': No such file or directory
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -p ~/uma/* /tmp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -rp uma tmp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -pr uma tmp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp uma/* /tmp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp pr uma/* /tmp
cp: cannot stat 'pr': No such file or directory
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -pr uma/* /tmp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -pr uma/* tmp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -r uma tmp
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -r tmp uma
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cd Downloads
lab05-pc04@lab05pc04-H310M-S2-2-0:~/Downloads$ ls
linux_commands_qna.pdf    uma
lab05-pc04@lab05pc04-H310M-S2-2-0:~/Downloads$ cd ..
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -r tmp /Downloads/uma
cp: cannot create directory '/Downloads/uma': No such file or directory
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ ^C
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -r /home/lab05-pc04 /home/lab05-pc04/Downloads/rm
cp: cannot copy a directory, '/home/lab05-pc04', into itself, '/home/lab05-pc04/Downloads/rm/lab05-pc04'
lab05-pc04@lab05pc04-H310M-S2-2-0:~$
lab05-pc04@lab05pc04-H310M-S2-2-0:~$
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ cp -r /home/lab05-pc04/backup /home/lab05-pc04/Downloads/rm
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ mv /home/lab05-pc04/file.txt /home/lab05-pc04/Documents
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ mv file.txt iamhappy
mv: cannot stat 'file.txt': No such file or directory
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ mv happy iamhappy
lab05-pc04@lab05pc04-H310M-S2-2-0:~$ ^C
lab05-pc04@lab05pc04-H310M-S2-2-0:~$
```