

Linux



Introduction to Linux

Module 1: What is Linux?



Introduction to Linux

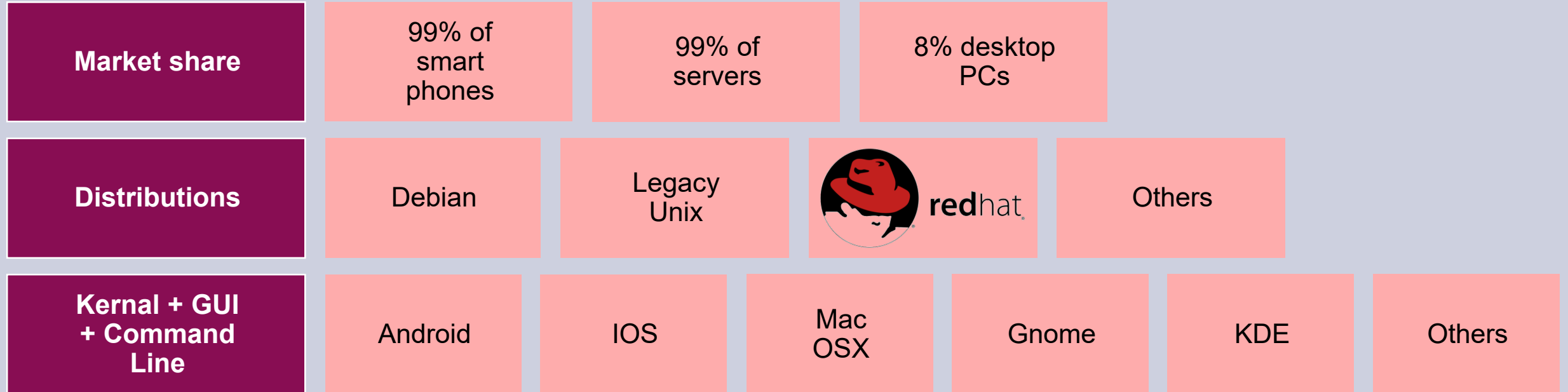


In this introduction to Linux, we will introduce you to the skills you need to be comfortable in a Linux environment as well as be able to solve problems using these skills.

We will break the course down into modules with exercises to practice these skills in each module.



What is Linux



Created in 1991 as a personal project of Linus Torvalds (a student at the time). The idea was to create a new free, open-source operating system kernel.

Linux has more that 23 million lines of source code.

It is based on UNIX which was initially released in 1970.



Production Support vs Systems Admin



Admin

su

sudo

Intermediate
Networking (firewalls)

systemd

mount

kernel versions

Regular

Basic

Files

Processes

Text Files
(vim, grep, awk)

Networking
(netstat, ping, ifconfig)

Intermediate

emacs

Scripting

Debugging

Text Files
(regex)

Networking
(lsof, dns, etc)

Advanced

Scripting

Debugging

Text Files
(sed/awk scripts)

Networking
(wireshark)

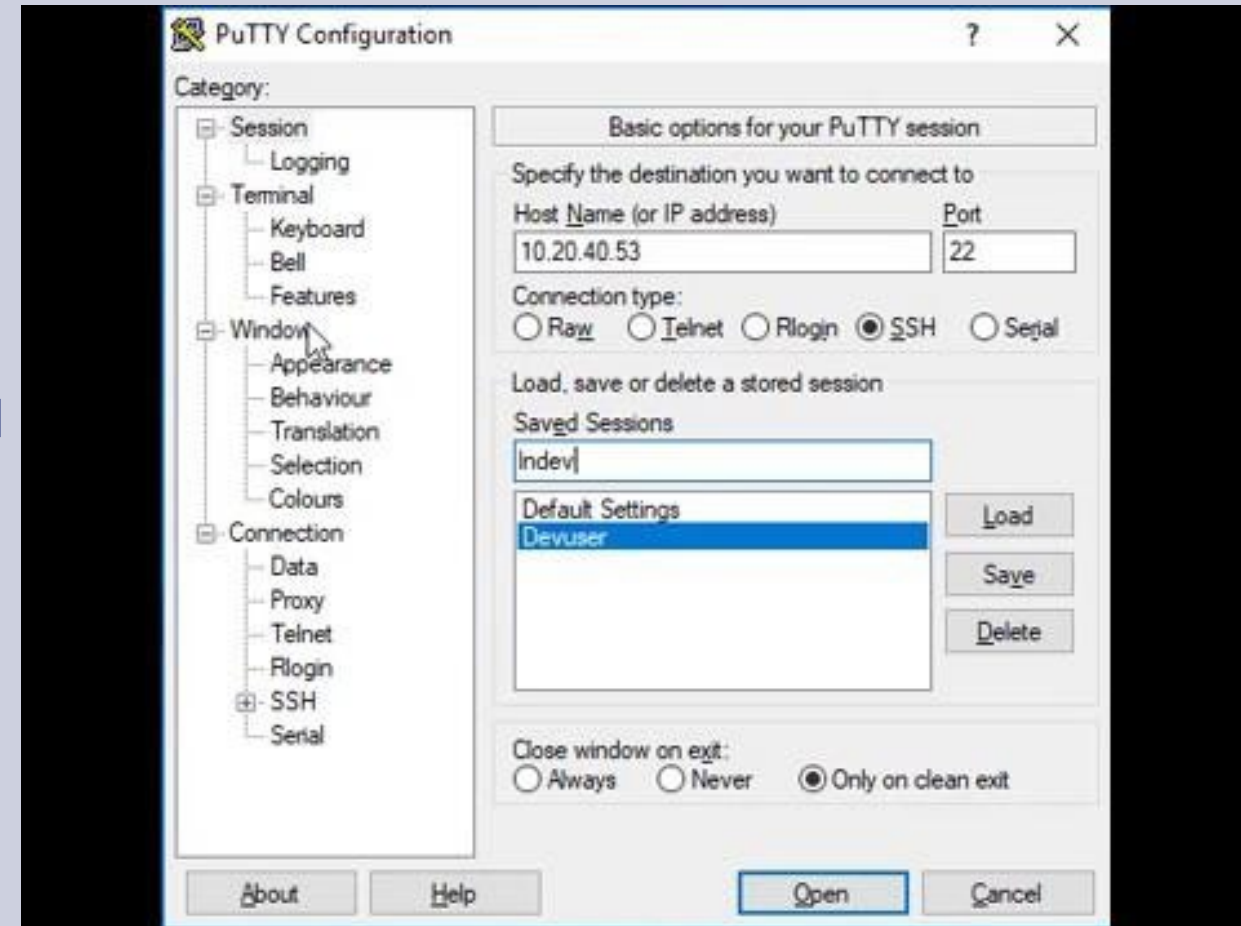
Monitoring

Accessing Linux - PuTTY



The most popular tool which is used to remotely login to Linux is PuTTY

- Specify Hostname/IP
- Rename session
- Close window on exit = Never
- Lines of scrollback = 99999
- Specify auto-login username
- Attempt GSSAPI Authentication = unchecked
- Save profile



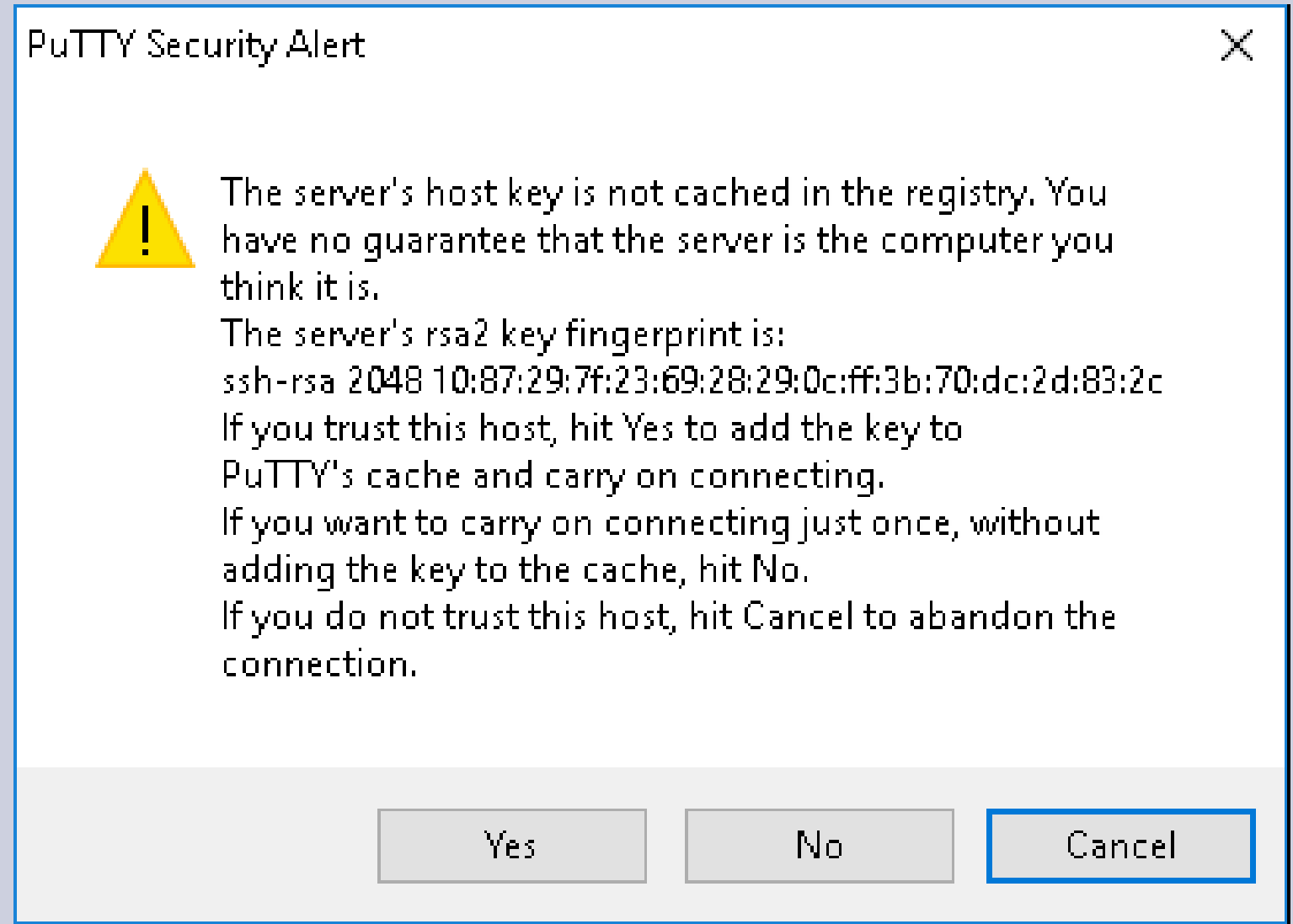


Putty continued

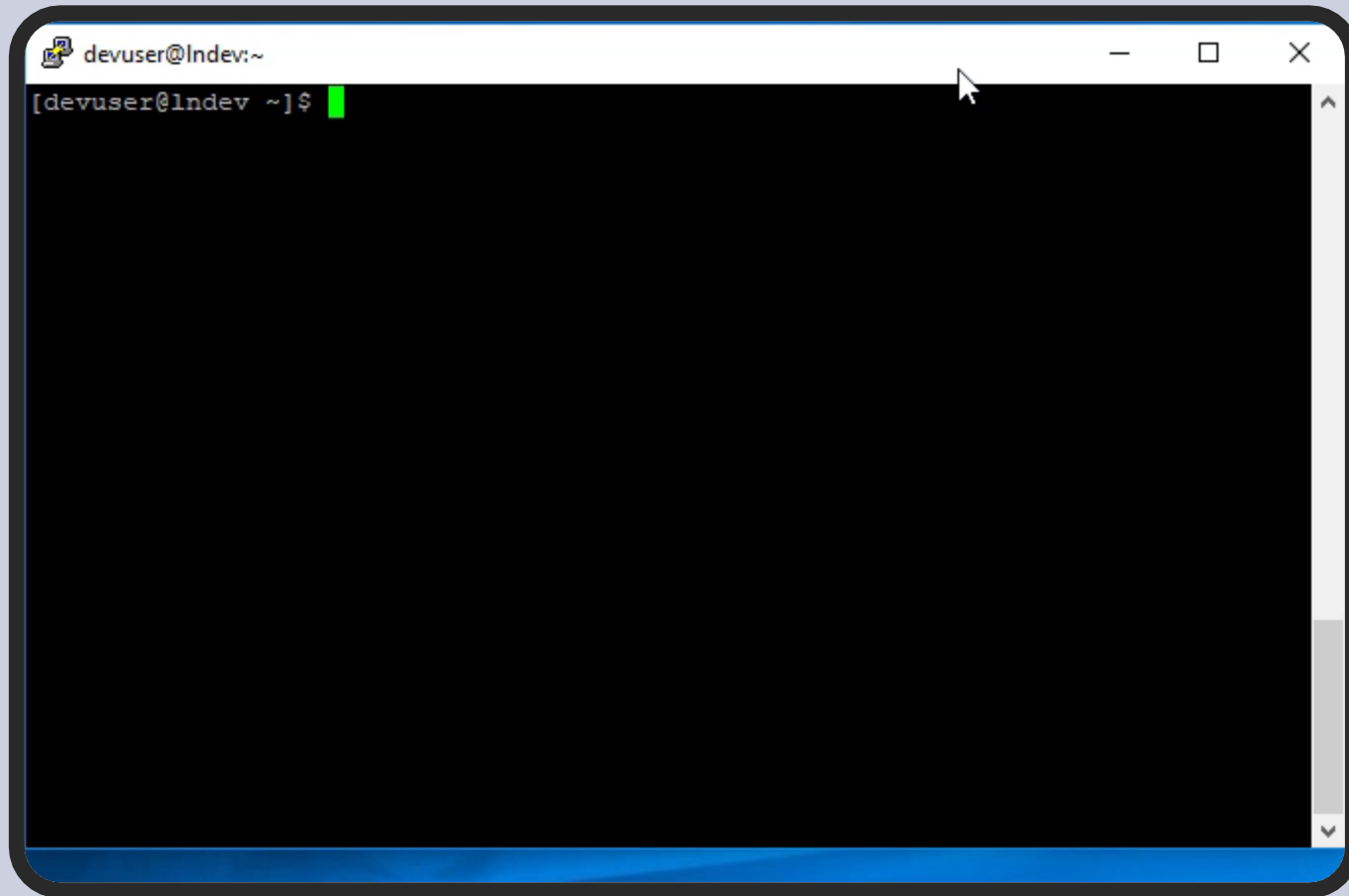


You will receive this message when you first log on to a host.

It's fine to say yes to this warning.



PuTTY – window colors



Top Tip:

- Change PuTTY window colors to something that alerts you to whether you are on a production host or UAT
- This will save you at some point in the future
- Configurable in the PuTTY window settings

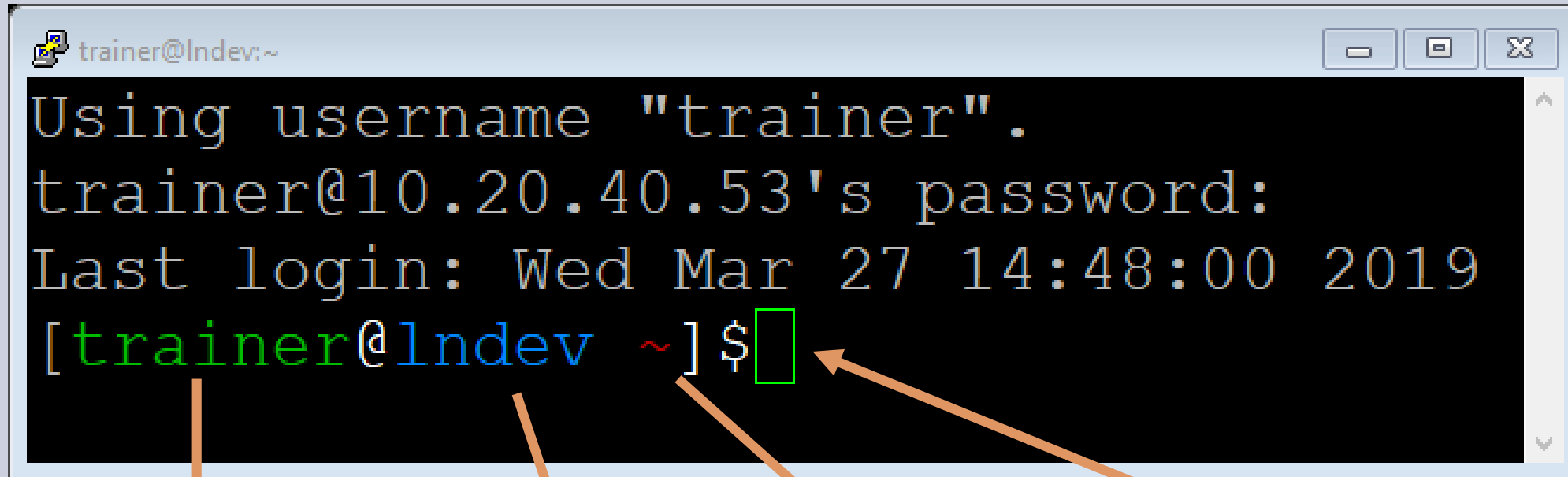


Configuring an AWS instance



1. Have PuTTY installed
2. Login to <https://aws.amazon.com/>
3. Enter username and password
4. Go to compute and click ec2
5. Click launch instance
6. Select the second instance
7. Choose the free tier option and click review and launch
8. Add tags – name and location then review and launch
9. For first time usage, you need to setup a new security pair
10. In this case we have shared the key: select London April
11. Select instance and get the connect details
12. Put the details into PuTTY, including loading the key on the SSH/Auth category

PuTTY – After Logging in



```
trainer@Indev:~  
Using username "trainer".  
trainer@10.20.40.53's password:  
Last login: Wed Mar 27 14:48:00 2019  
[trainer@Indev ~]$
```

Username

Hostname

Current folder

The Command
Line/Prompt

Linux Commands



Structure

command [-option(s)] [argument(s)]

Entering Commands

ls lists the contents of the current directory

ls / list contents of the / directory

A terminal window titled 'devuser@lndev:~' showing the output of the 'ls' command. The output is a long list of files and directories, including 'afile', 'ansible_keys', 'curie02demo.jil', 'curie06.jil', 'curie07', 'curie10.jil', 'curie12demo.jil', 'curie13.jil', 'curie14.jil', 'DallasJan2019', 'deleteme', 'demo_curie03.jil', 'demo_curie05.jil', 'demo_curie05.jil', 'demo_curie11.jil', 'demo_curie15.jil', 'demo_curie16.jil', 'demo.curie20.jil', 'demodhodgins.jil', 'demo.jil', 'dhodgins', 'getUniverse', 'gp', 'guan', 'helloFromAnsible.txt', 'kpashindia.jil', 'newScript', 'NYCJan2019', 'NYCNov2019', 'perl5', and 'tup'. The terminal window has a black background with white text and a green cursor at the end of the last line.

```
devuser@lndev:~  
[devuser@lndev ~]$ ls  
afile curie14.jil demo_curie16.jil helloFromAnsible.txt  
ansible_keys DallasJan2019 demo.curie20.jil kpashindia.jil  
curie02demo.jil deleteme demodhodgins.jil newScript  
curie06.jil demo_curie03.jil demo.jil NYCJan2019  
curie07 demo_curie05.jil dhodgins NYCNov2019  
curie10.jil demo_curie05.jil getUniverse perl5  
curie12demo.jil demo_curie11.jil gp tup  
curie13.jil demo_curie15.jil guan  
[devuser@lndev ~]$  
[devuser@lndev ~]$  
[devuser@lndev ~]$ ls /
```



Linux Commands



[Command] [-flag -switch1 one -type dir] [argument1 arg2 arg3]

```
ls -l /bin/
```

```
ls -l /bin/ /tmp/
```

[Command] [argument1 arg2 arg3] [-flag -switch1 one -type dir]

```
ls /bin/ -l
```

```
ls /bin/ /tmp/ -l
```

[Command] [-switch1 one -type dir] [argument1 arg2 arg3] [-flag]

```
ls -l /bin/ -s
```

#Combine flags

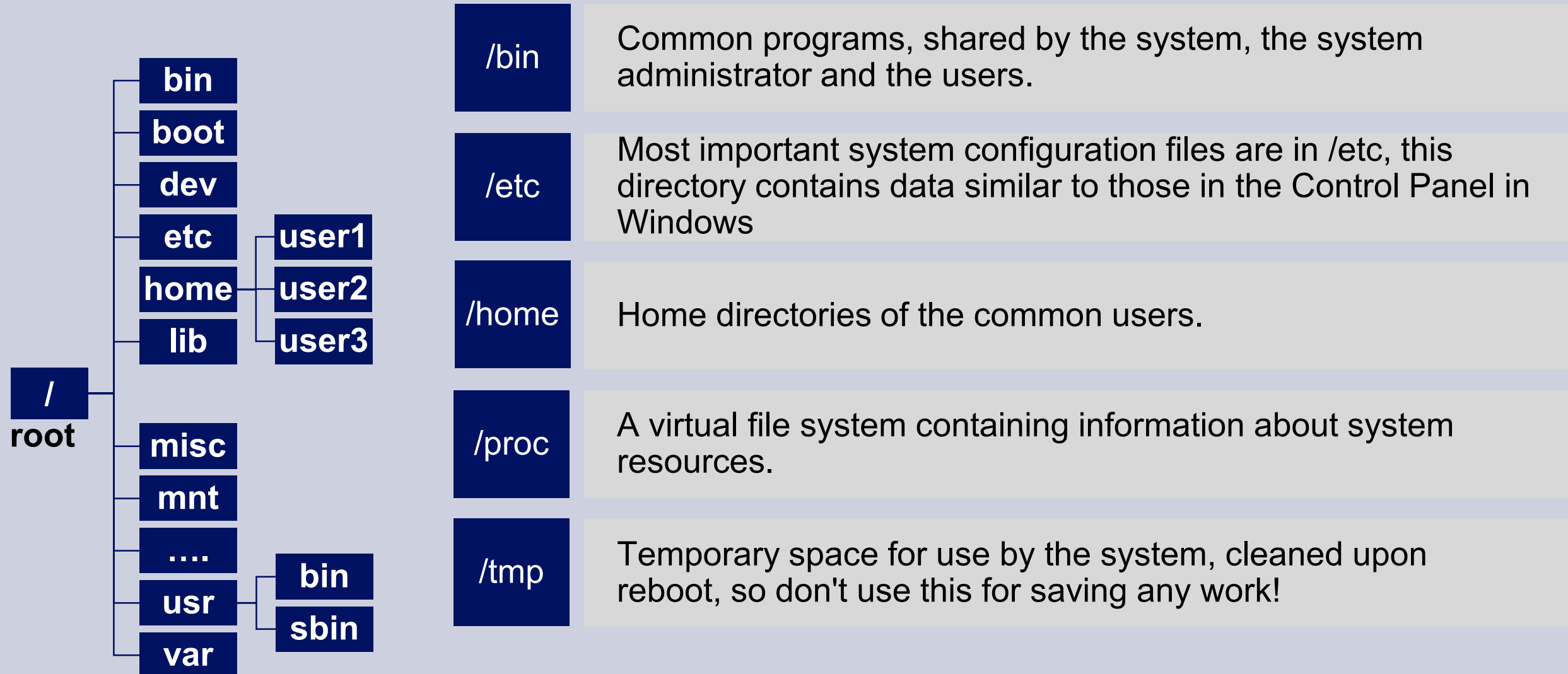
```
ls -ls /bin/
```

```
ls -lsh /bin/
```

```
ls -l -s -h /bin/
```



Linux File System





Subdirectories of root



/boot	The startup files and the kernel, vmlinuz. In some recent distributions also grub data.	/sbin	Programs for use by the system and the system administrator.
/dev	Contains references to all the CPU peripheral hardware, which are represented as files with special properties.	/usr	Programs, libraries, documentation etc. for all user-related programs.
/initrd	(on some distributions) Information for booting. Do not remove!	/var	Storage for all variable files and temporary files created by users.
/lib	Library files, includes files for all kinds of programs needed by the system and the users.	/net	Standard mount point for entire remote file systems
/lost+found	Every partition has a lost+found in its upper directory. Files that were saved during failures are here.	/opt	Typically contains extra and third party software.
/misc	For miscellaneous purposes.	/root	The administrative user's home directory. "/", the root directory and /root, the home directory of the root user are different
/mnt	Standard mount point for external file systems, e.g. a CD-ROM or a digital camera.		



Windows vs Linux



Windows	Linux	Description
This PC	/	File system
C:\		Primary disk
C:\Users	/home	User home directory
C:\Users\another	/home/another	Home directory for A. N. Other
C:\Program Files	/bin /sbin	Programs
C:\Windows	/boot /var	OS files