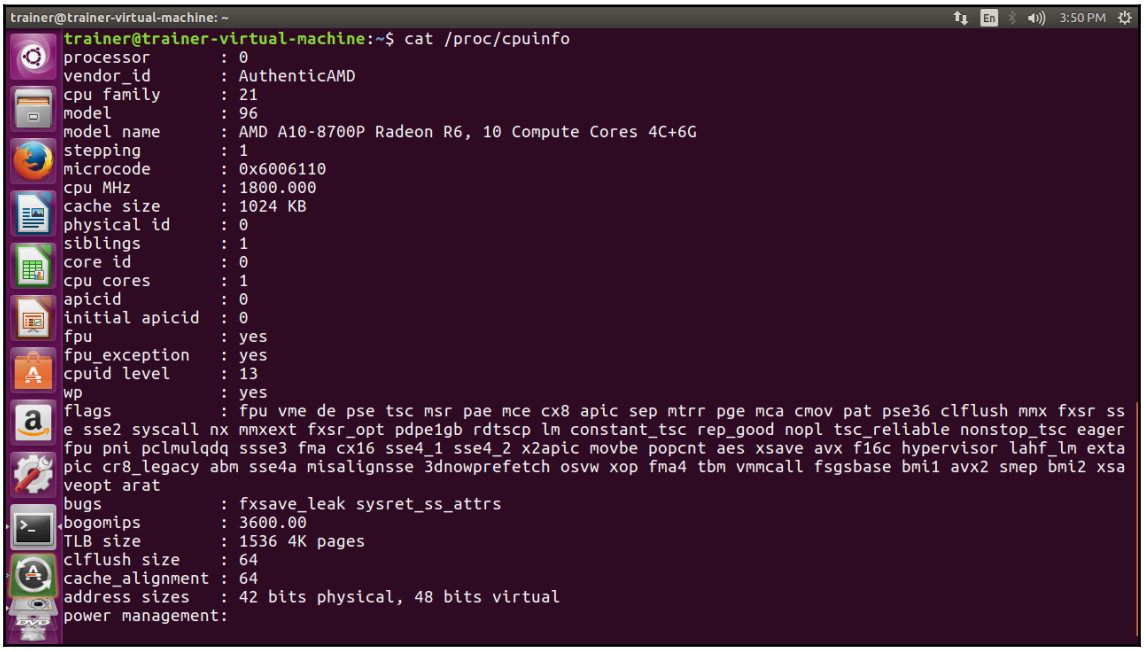
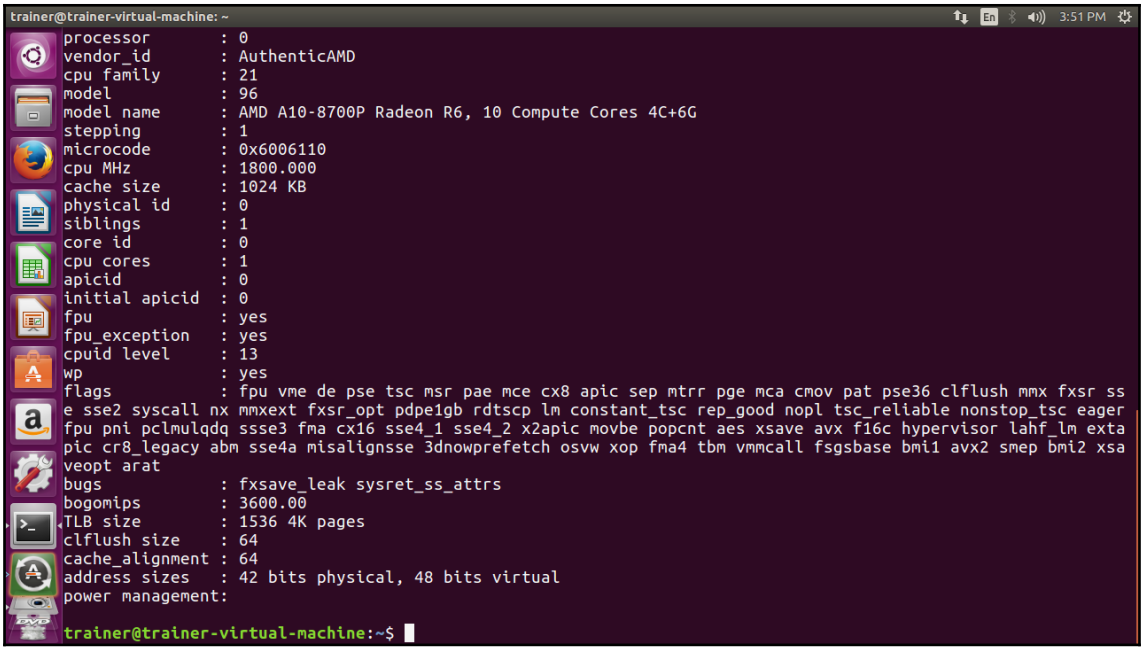
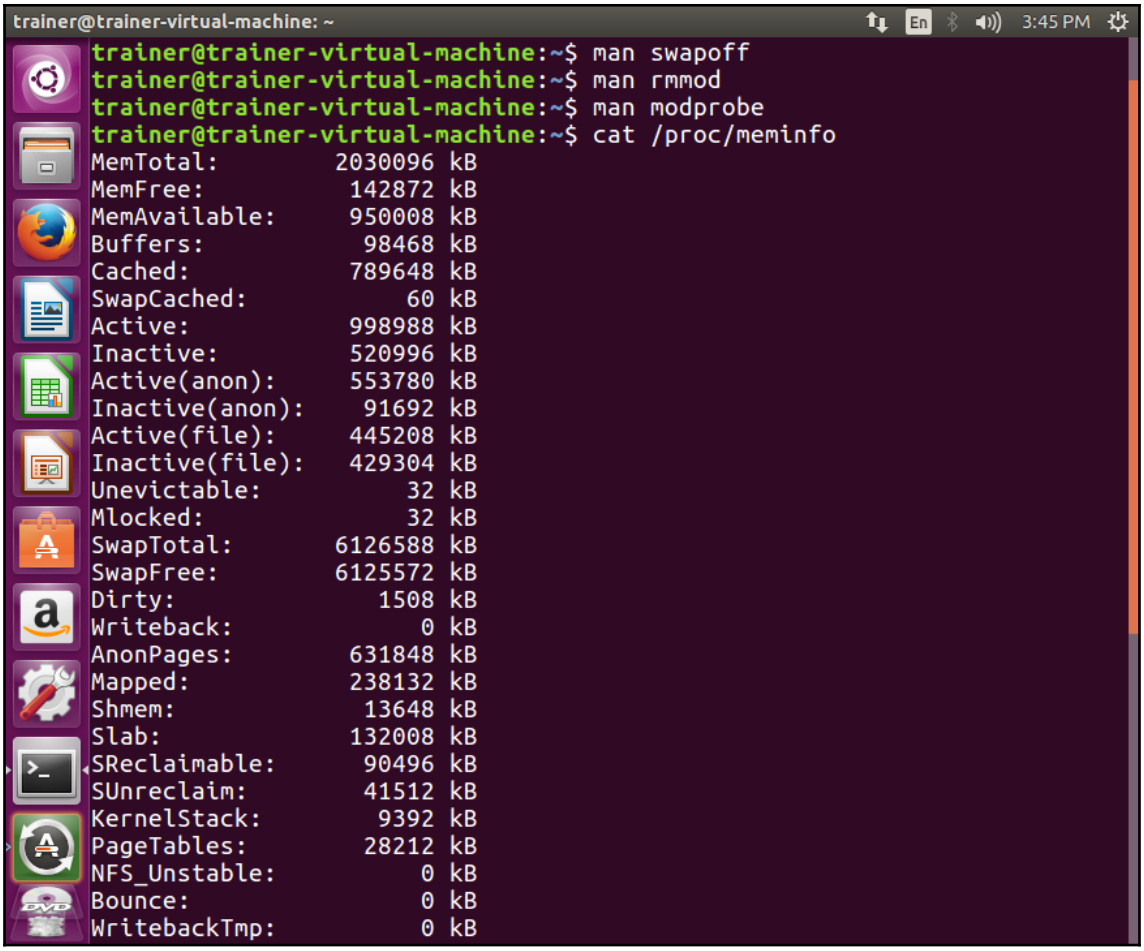
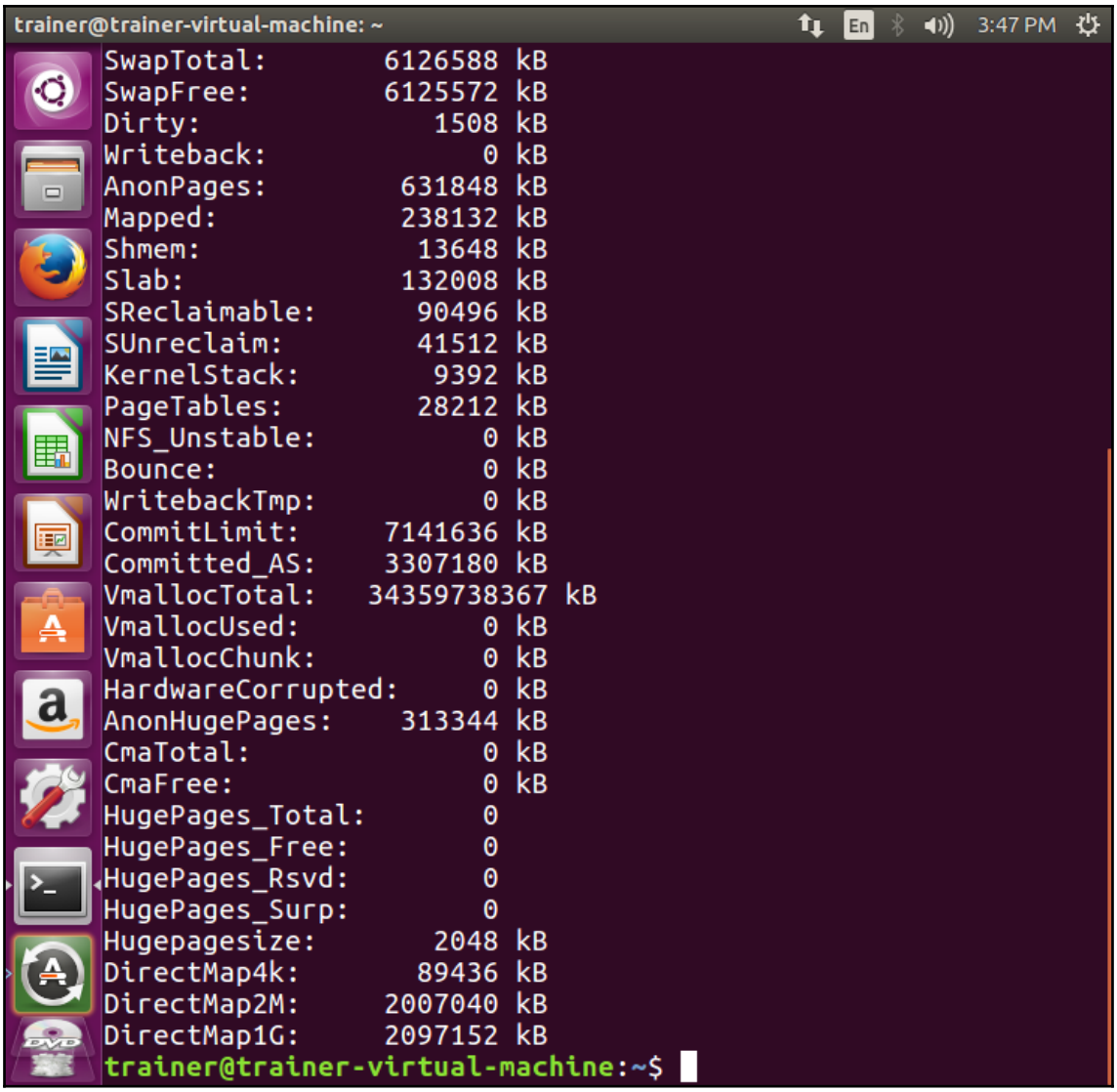
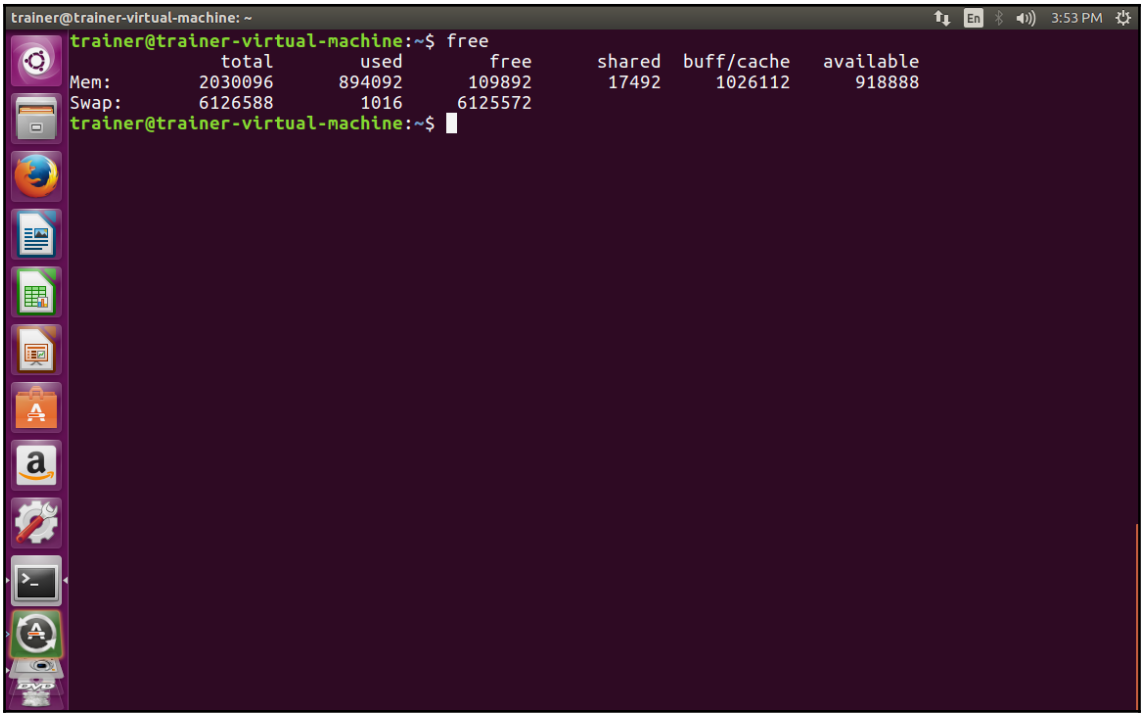
Chapter 1: Configuring the Hardware Settings

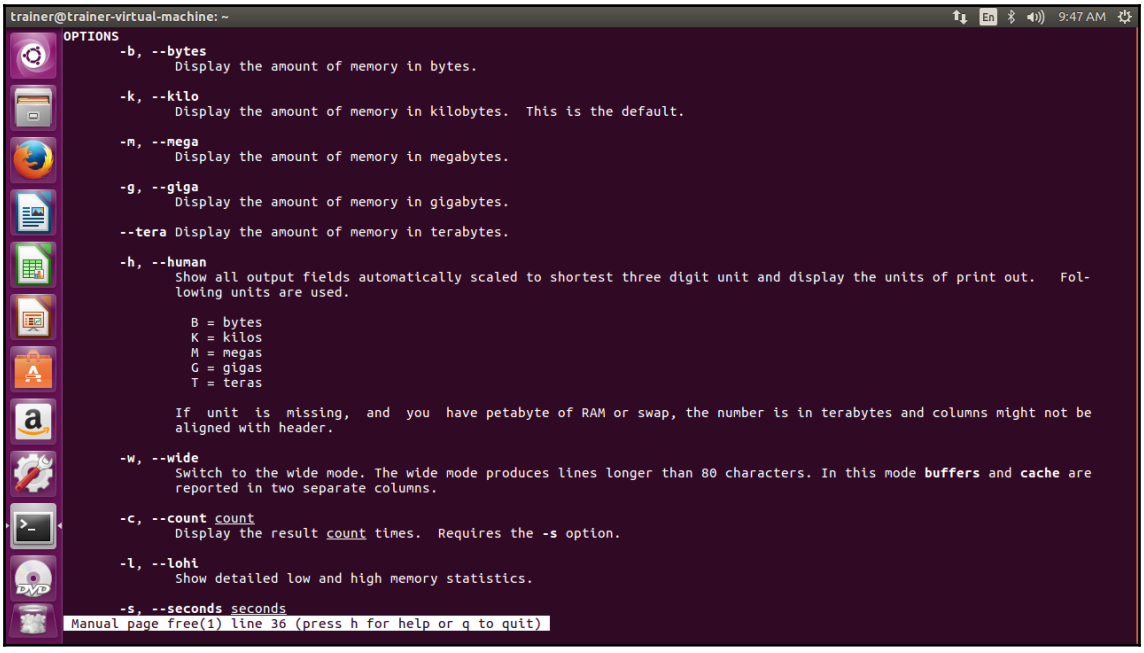


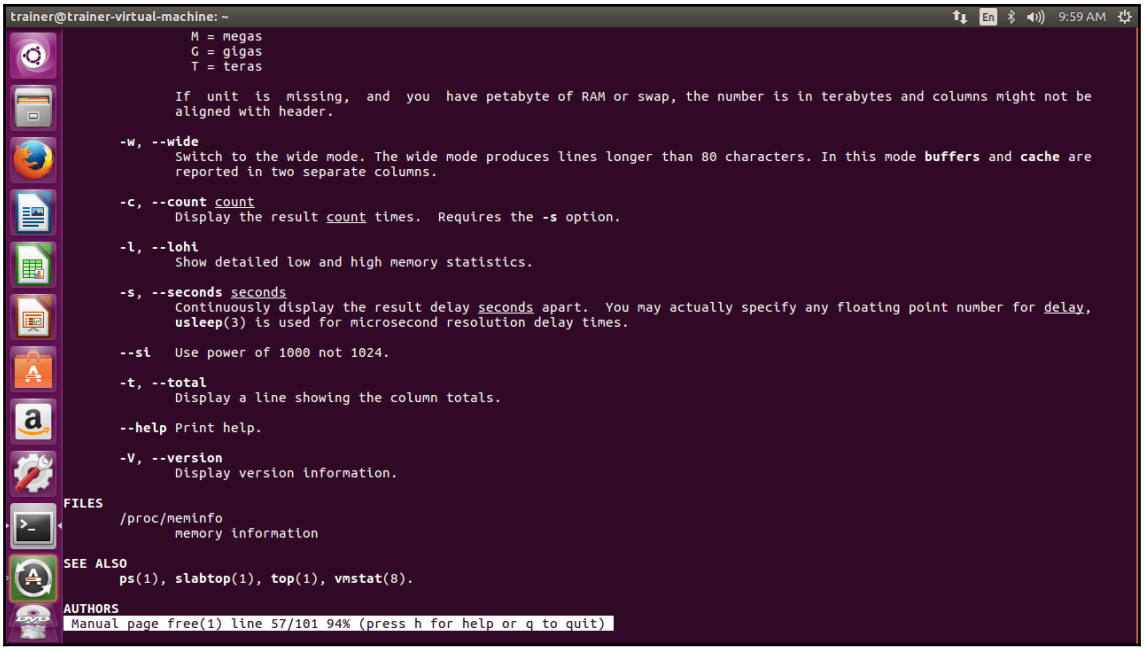

trainer@trainer-virtual-machine: ~
En
3:51 PM
processor : 0
vendor_id : AuthenticAMD
cpu family : 21
model : 96
model name : AMD A10-8700P Radeon R6, 10 Compute Cores 4C+6G
stepping : 1
microcode : 0x6006110
cpu MHz : 1800.000
cache size : 1024 KB
physical id : 0
siblings : 1
core id : 0
cpu cores : 1
apicid : 0
initial apicid : 0
fpu : yes
fpu_exception : yes
cpuid level : 13
wp : yes
flags : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm constant_tsc rep_good nopl tsc_reliable nonstop_tsc eagerfpu pni pclmulqdq ssse3 fma cx16 sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c hypervisor lahf_lm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw xop fma4 tbm vmmcall fsgsbase bmi1 avx2 smep bmi2 xsaveopt arat
bugs : fxsave_leak sysret_ss_attrs
bogomips : 3600.00
TLB size : 1536 4K pages
clflush size : 64
cache_alignment : 64
address sizes : 42 bits physical, 48 bits virtual
power management:
trainer@trainer-virtual-machine:~$

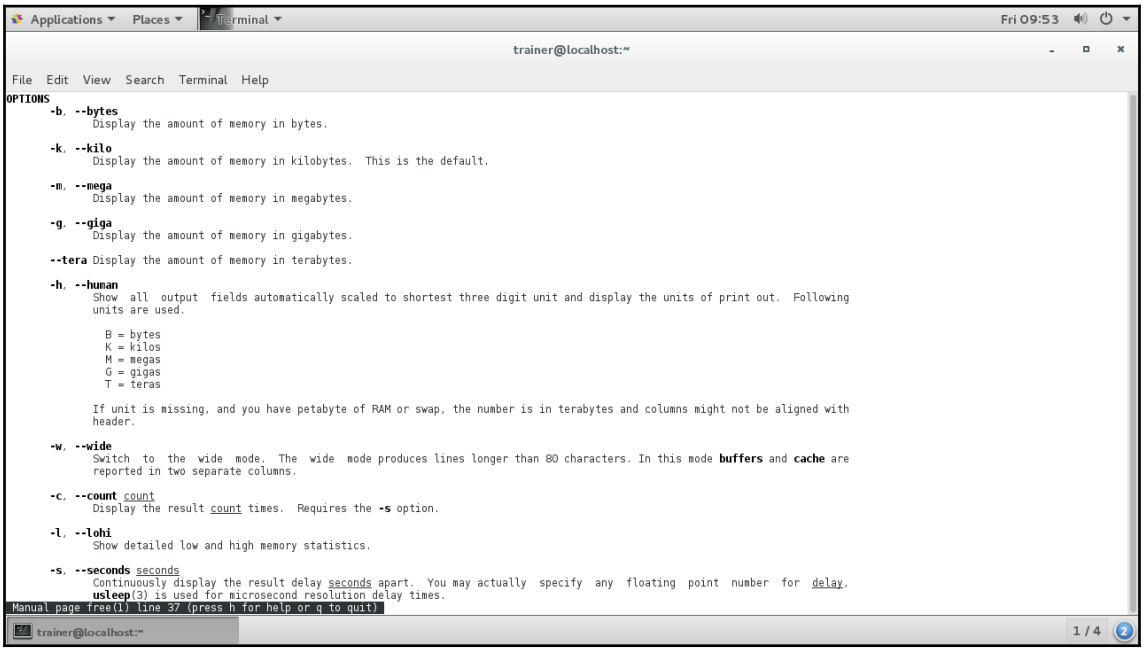

trainer@trainer-virtual-machine: ~
En
3:45 PM
trainer@trainer-virtual-machine:~$ man swapoff
trainer@trainer-virtual-machine:~$ man rmmod
trainer@trainer-virtual-machine:~$ man modprobe
trainer@trainer-virtual-machine:~$ cat /proc/meminfo
MemTotal: 2030096 kB
MemFree: 142872 kB
MemAvailable: 950008 kB
Buffers: 98468 kB
Cached: 789648 kB
SwapCached: 60 kB
Active: 998988 kB
Inactive: 520996 kB
Active(anon): 553780 kB
Inactive(anon): 91692 kB
Active(file): 445208 kB
Inactive(file): 429304 kB
Unevictable: 32 kB
Mlocked: 32 kB
SwapTotal: 6126588 kB
SwapFree: 6125572 kB
Dirty: 1508 kB
Writeback: 0 kB
AnonPages: 631848 kB
Mapped: 238132 kB
Shmem: 13648 kB
Slab: 132008 kB
SReclaimable: 90496 kB
SUnreclaim: 41512 kB
KernelStack: 9392 kB
PageTables: 28212 kB
NFS_Unstable: 0 kB
Bounce: 0 kB
WritebackTmp: 0 kB


trainer@trainer-virtual-machine: ~
En
3:47 PM
SwapTotal: 6126588 kB
SwapFree: 6125572 kB
Dirty: 1508 kB
Writeback: 0 kB
AnonPages: 631848 kB
Mapped: 238132 kB
Shmem: 13648 kB
Slab: 132008 kB
SReclaimable: 90496 kB
SUnreclaim: 41512 kB
KernelStack: 9392 kB
PageTables: 28212 kB
NFS_Unstable: 0 kB
Bounce: 0 kB
WritebackTmp: 0 kB
CommitLimit: 7141636 kB
Committed_AS: 3307180 kB
VmallocTotal: 34359738367 kB
VmallocUsed: 0 kB
VmallocChunk: 0 kB
HardwareCorrupted: 0 kB
AnonHugePages: 313344 kB
CmaTotal: 0 kB
CmaFree: 0 kB
HugePages_Total: 0
HugePages_Free: 0
HugePages_Rsvd: 0
HugePages_Surp: 0
Hugepagesize: 2048 kB
DirectMap4k: 89436 kB
DirectMap2M: 2007040 kB
DirectMap1G: 2097152 kB
trainer@trainer-virtual-machine:~$

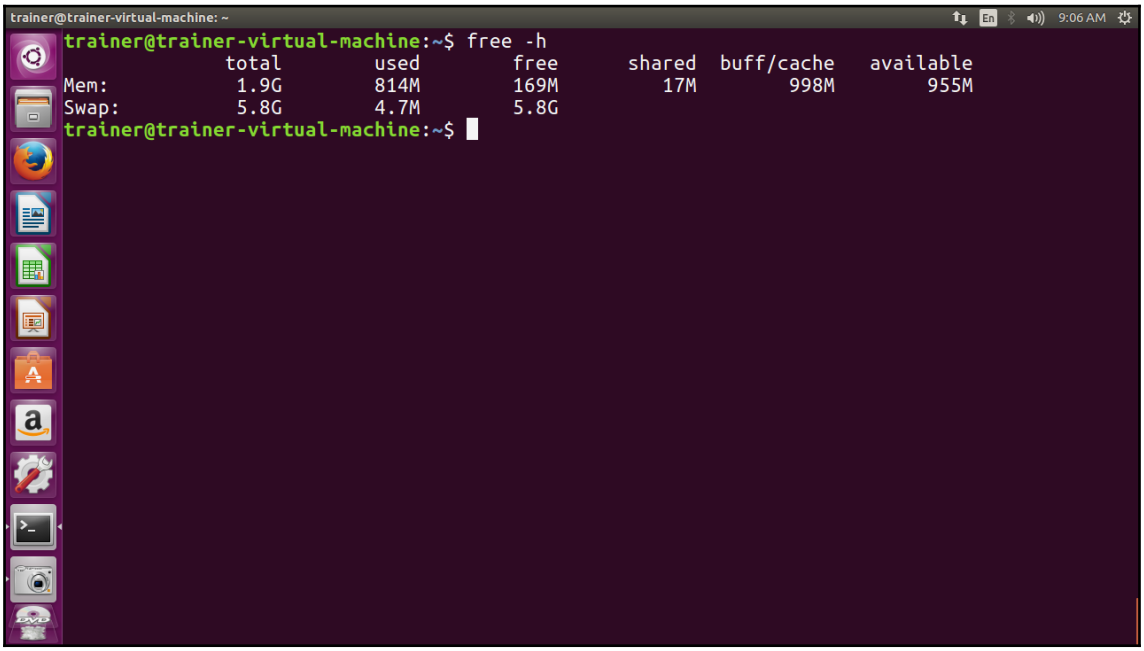

trainer@trainer-virtual-machine: ~
En
3:53 PM
trainer@trainer-virtual-machine:~$ free
total used free shared buff/cache available
Mem: 2030096 894092 109892 17492 1026112 918888
Swap: 6126588 1016 6125572
trainer@trainer-virtual-machine:~$

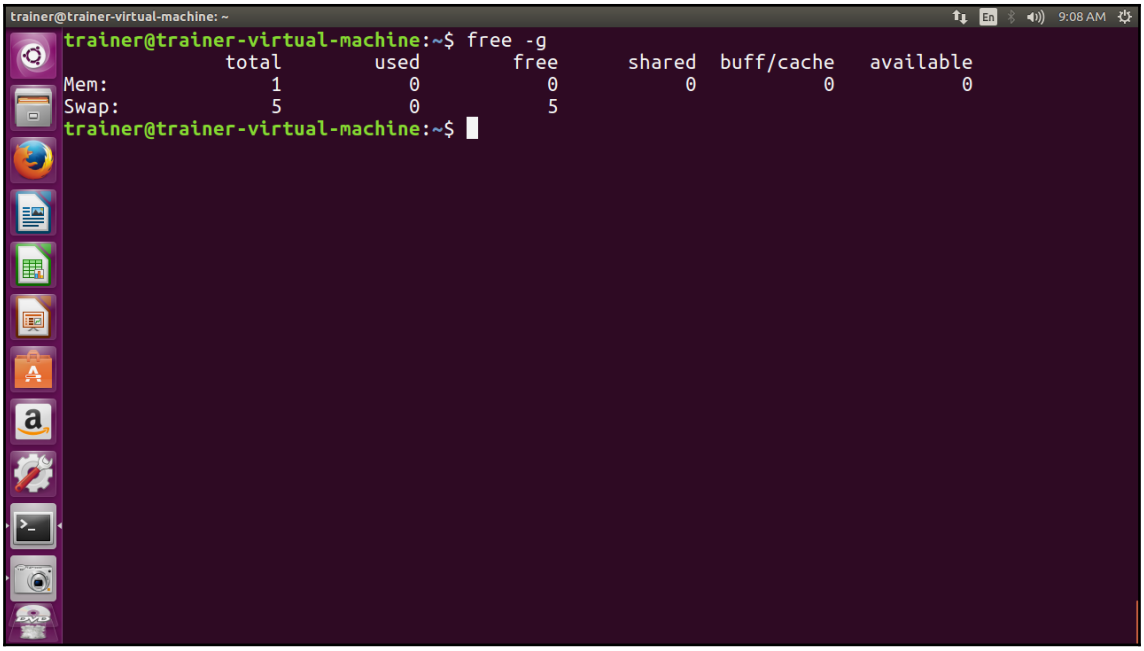

trainer@trainer-virtual-machine: ~
En
9:47 AM
OPTIONS
-b, --bytes
Display the amount of memory in bytes.
-k, --kilo
Display the amount of memory in kilobytes. This is the default.
-m, --mega
Display the amount of memory in megabytes.
-g, --giga
Display the amount of memory in gigabytes.
--tera Display the amount of memory in terabytes.
-h, --human
Show all output fields automatically scaled to shortest three digit unit and display the units of print out. Following units are used.
B = bytes
K = kilos
M = megas
G = gigas
T = teras
If unit is missing, and you have petabyte of RAM or swap, the number is in terabytes and columns might not be aligned with header.
-w, --wide
Switch to the wide mode. The wide mode produces lines longer than 80 characters. In this mode buffers and cache are reported in two separate columns.
-c, --count count
Display the result count times. Requires the -s option.
-l, --lohi
Show detailed low and high memory statistics.
-s, --seconds seconds
Manual page free(1) line 36 (press h for help or q to quit)

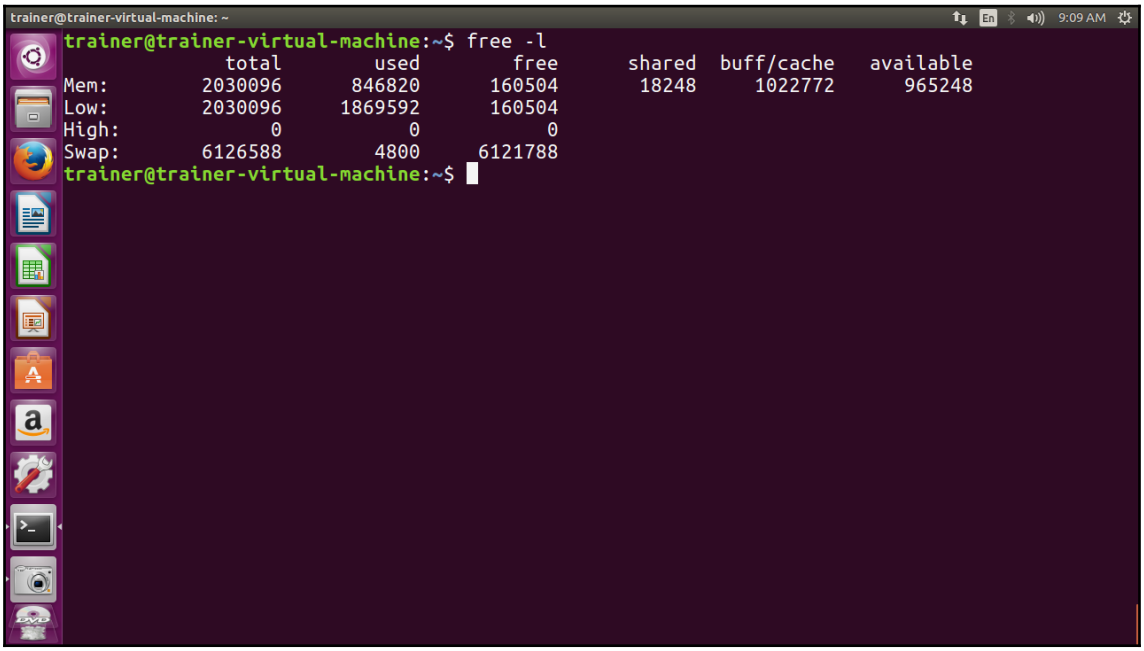

trainer@trainer-virtual-machine: ~
En
9:59 AM
M = megas
G = gigas
T = teras
If unit is missing, and you have petabyte of RAM or swap, the number is in terabytes and columns might not be aligned with header.
-w, --wide
Switch to the wide mode. The wide mode produces lines longer than 80 characters. In this mode buffers and cache are reported in two separate columns.
-c, --count count
Display the result count times. Requires the -s option.
-l, --lohi
Show detailed low and high memory statistics.
-s, --seconds seconds
Continuously display the result delay seconds apart. You may actually specify any floating point number for delay, usleep(3) is used for microsecond resolution delay times.
--si Use power of 1000 not 1024.
-t, --total
Display a line showing the column totals.
--help Print help.
-V, --version
Display version information.
FILES
/proc/meminfo
memory information
SEE ALSO
ps(1), slabtop(1), top(1), vmstat(8).
AUTHORS
Manual page free(1) line 57/101 94% (press h for help or q to quit)

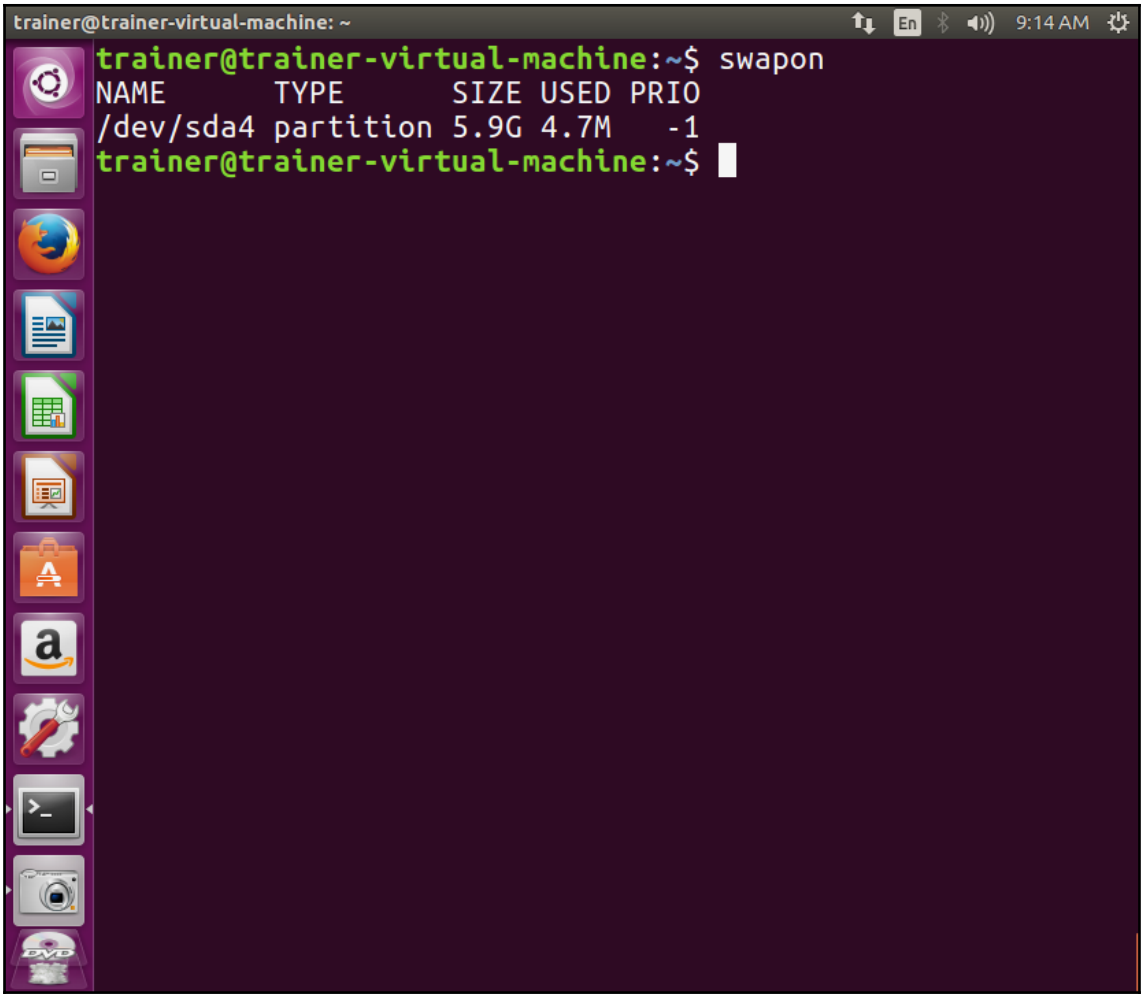

Applications
Places
Terminal
Fri 09:53
trainer@localhost:~
File Edit View Search Terminal Help
OPTIONS
-b, --bytes
Display the amount of memory in bytes.
-k, --kilo
Display the amount of memory in kilobytes. This is the default.
-m, --mega
Display the amount of memory in megabytes.
-g, --giga
Display the amount of memory in gigabytes.
--tera Display the amount of memory in terabytes.
-h, --human
Show all output fields automatically scaled to shortest three digit unit and display the units of print out. Following units are used.
B = bytes
K = kilos
M = megas
G = gigas
T = teras
If unit is missing, and you have petabyte of RAM or swap, the number is in terabytes and columns might not be aligned with header.
-w, --wide
Switch to the wide mode. The wide mode produces lines longer than 80 characters. In this mode buffers and cache are reported in two separate columns.
-c, --count count
Display the result count times. Requires the -s option.
-l, --lohi
Show detailed low and high memory statistics.
-s, --seconds seconds
Continuously display the result delay seconds apart. You may actually specify any floating point number for delay, usleep(3) is used for microsecond resolution delay times.
Manual page free(1) line 37 (press h for help or q to quit)
trainer@localhost:~
1 / 4


Applications
Places
Terminal
Fri 10:02
trainer@localhost:~
File Edit View Search Terminal Help
If unit is missing, and you have petabyte of RAM or swap, the number is in terabytes and columns might not be aligned with header.
-w, --wide
Switch to the wide mode. The wide mode produces lines longer than 80 characters. In this mode buffers and cache are reported in two separate columns.
-c, --count count
Display the result count times. Requires the -s option.
-l, --lohi
Show detailed low and high memory statistics.
-s, --seconds seconds
Continuously display the result delay seconds apart. You may actually specify any floating point number for delay, usleep(3) is used for microsecond resolution delay times.
--si Use power of 1000 not 1024.
-t, --total
Display a line showing the column totals.
--help Print help.
-V, --version
Display version information.
FILES
/proc/meminfo
memory information
SEE ALSO
ps(1), slabtop(1), top(1), vmstat(8).
AUTHORS
Written by Brian Edmonds.
REPORTING BUGS
Please send bug reports to (procps@freelists.org)
procps-ng July 2014 FREE(1)
Manual page free(1) line 62/104 (END) (press h for help or q to quit)
trainer@localhost:~
1 / 4

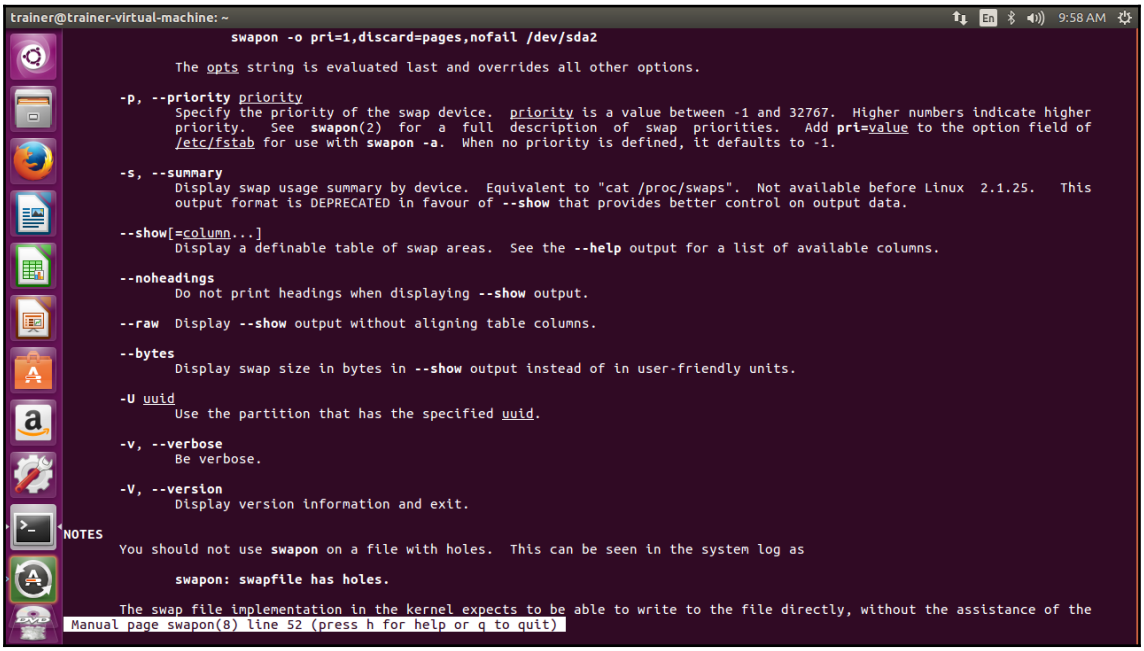

trainer@trainer-virtual-machine: ~
En
9:06 AM
trainer@trainer-virtual-machine:~$ free -h
total used free shared buff/cache available
Mem: 1.9G 814M 169M 17M 998M 955M
Swap: 5.8G 4.7M 5.8G
trainer@trainer-virtual-machine:~$

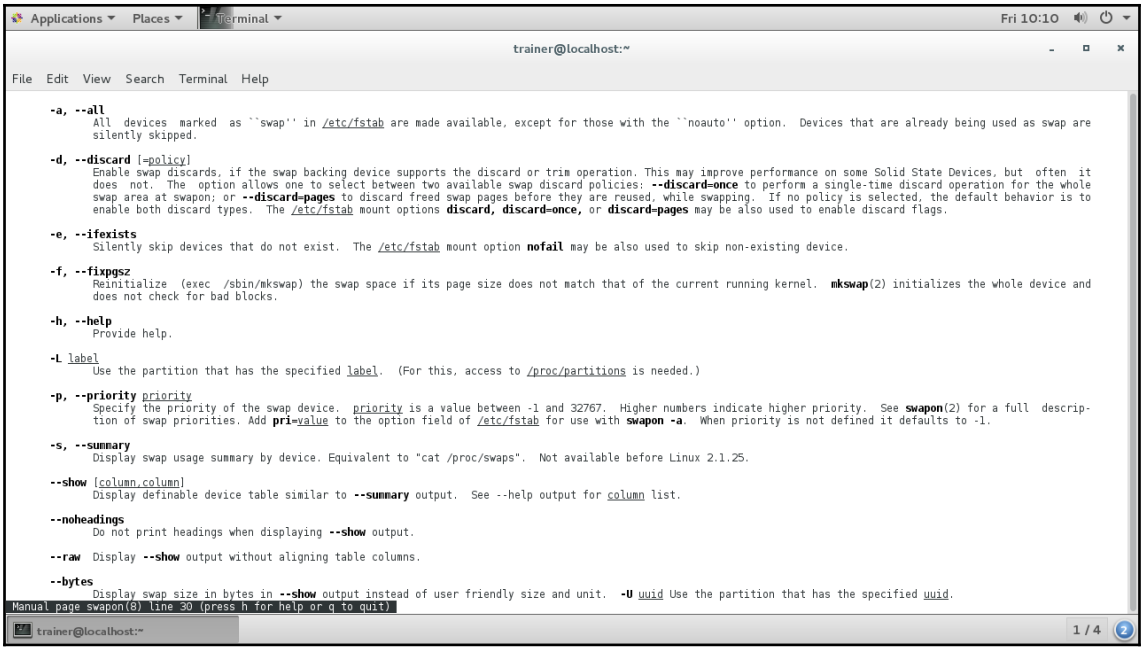

trainer@trainer-virtual-machine: ~
9:08 AM
trainer@trainer-virtual-machine:~$ free -g
total used free shared buff/cache available
Mem: 1 0 0 0 0 0
Swap: 5 0 5
trainer@trainer-virtual-machine:~$

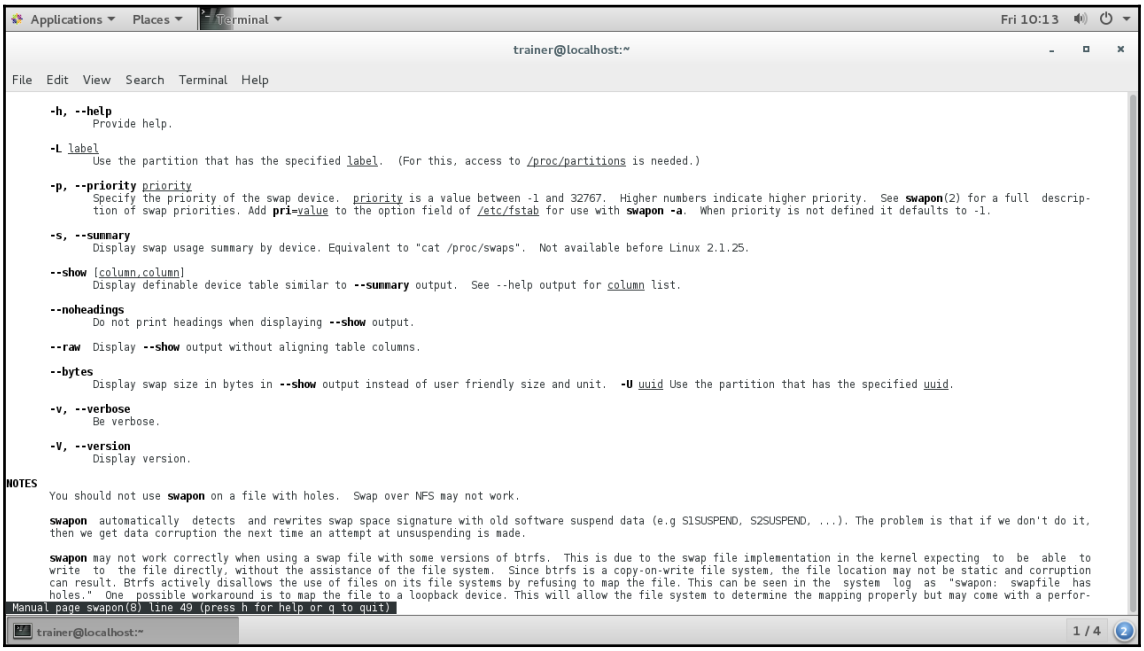

trainer@trainer-virtual-machine: ~
9:09 AM
trainer@trainer-virtual-machine:~$ free -l
total used free shared buff/cache available
Mem: 2030096 846820 160504 18248 1022772 965248
Low: 2030096 1869592 160504
High: 0 0 0
Swap: 6126588 4800 6121788
trainer@trainer-virtual-machine:~$

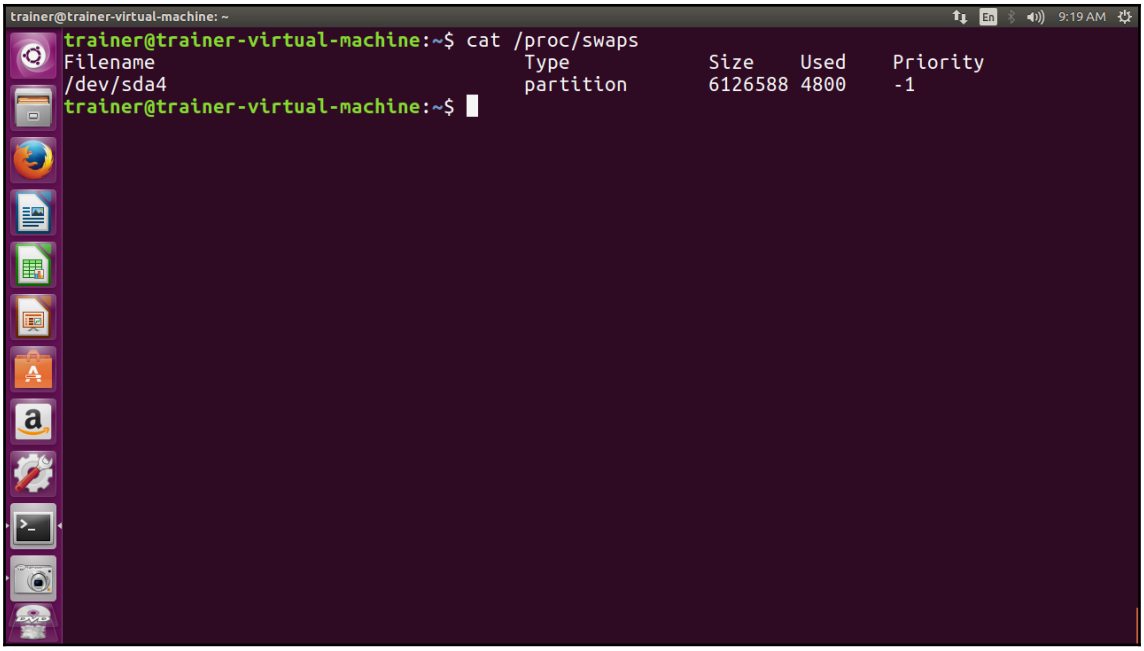

trainer@trainer-virtual-machine: ~
En
9:14 AM
trainer@trainer-virtual-machine:~$ swapon
NAME TYPE SIZE USED PRIO
/dev/sda4 partition 5.9G 4.7M -1
trainer@trainer-virtual-machine:~$

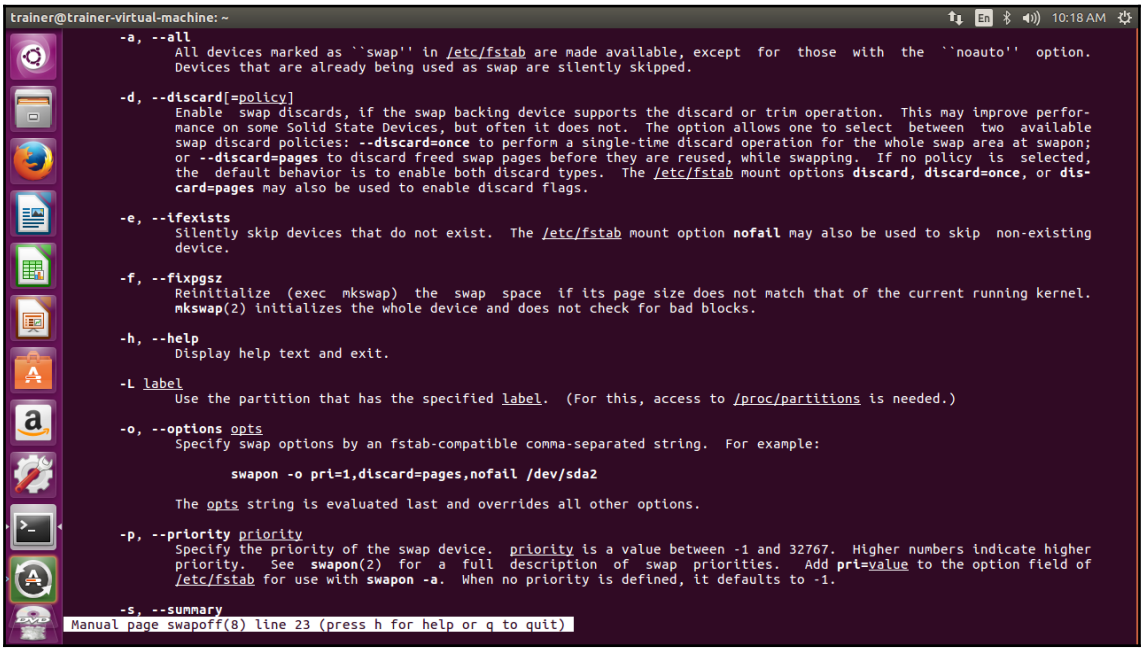

trainer@trainer-virtual-machine: ~
9:57 AM
OPTIONS
-a, --all
All devices marked as ``swap'' in /etc/fstab are made available, except for those with the ``noauto'' option. Devices that are already being used as swap are silently skipped.
-d, --discard[=policy]
Enable swap discards, if the swap backing device supports the discard or trim operation. This may improve performance on some Solid State Devices, but often it does not. The option allows one to select between two available swap discard policies: --discard=once to perform a single-time discard operation for the whole swap area at swapon; or --discard=pages to discard freed swap pages before they are reused, while swapping. If no policy is selected, the default behavior is to enable both discard types. The /etc/fstab mount options discard, discard=once, or discard=pages may also be used to enable discard flags.
-e, --ifexists
Silently skip devices that do not exist. The /etc/fstab mount option nofail may also be used to skip non-existing device.
-f, --fixpgsz
Reinitialize (exec mkswap) the swap space if its page size does not match that of the current running kernel. mkswap(2) initializes the whole device and does not check for bad blocks.
-h, --help
Display help text and exit.
-L label
Use the partition that has the specified label. (For this, access to /proc/partitions is needed.)
-o, --options opts
Specify swap options by an fstab-compatible comma-separated string. For example:
swapon -o pri=1,discard=pages,nofail /dev/sda2
The opts string is evaluated last and overrides all other options.
-p, --priority priority
Specify the priority of the swap device. priority is a value between -1 and 32767. Higher numbers indicate higher priority. See swapon(2) for a full description of swap priorities. Add pri=value to the option field of /etc/fstab for use with swapon -a. When no priority is defined, it defaults to -1.
Manual page swapon(8) line 22 (press h for help or q to quit)

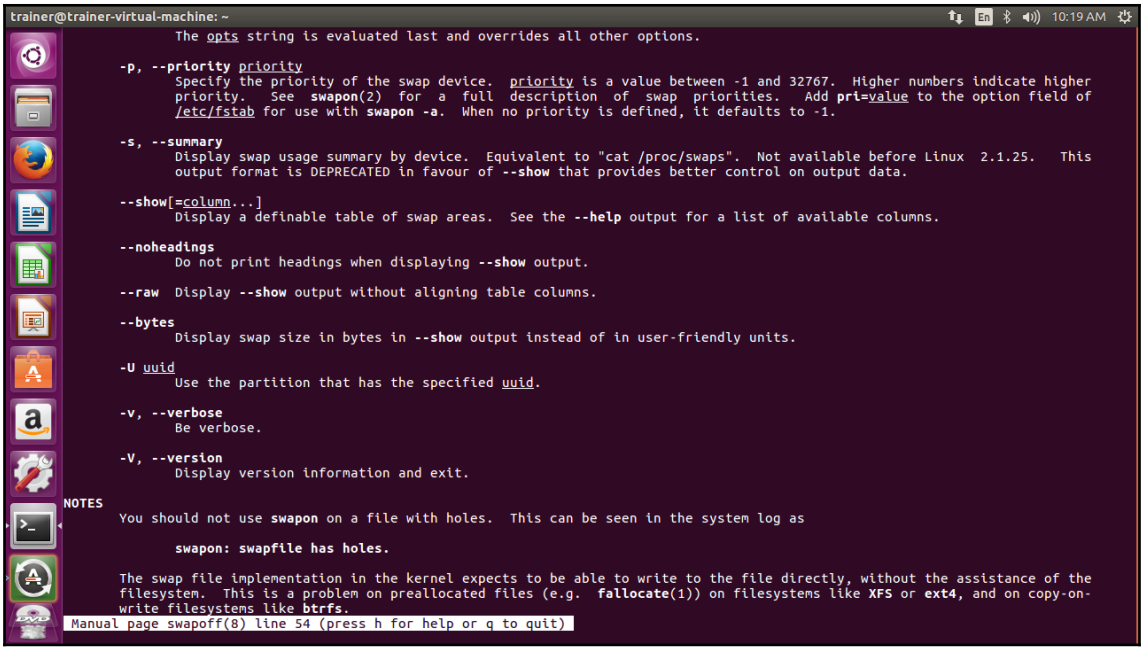

trainer@trainer-virtual-machine: ~
9:58 AM
swapon -o pri=1,discard=pages,nofail /dev/sda2
The opts string is evaluated last and overrides all other options.
-p, --priority priority
Specify the priority of the swap device. priority is a value between -1 and 32767. Higher numbers indicate higher priority. See swapon(2) for a full description of swap priorities. Add pri=value to the option field of /etc/fstab for use with swapon -a. When no priority is defined, it defaults to -1.
-s, --summary
Display swap usage summary by device. Equivalent to "cat /proc/swaps". Not available before Linux 2.1.25. This output format is DEPRECATED in favour of --show that provides better control on output data.
--show[=column...]
Display a definable table of swap areas. See the --help output for a list of available columns.
--noheadings
Do not print headings when displaying --show output.
--raw Display --show output without aligning table columns.
--bytes
Display swap size in bytes in --show output instead of in user-friendly units.
-U uuid
Use the partition that has the specified uuid.
-v, --verbose
Be verbose.
-V, --version
Display version information and exit.
NOTES
You should not use swapon on a file with holes. This can be seen in the system log as
swapon: swapfile has holes.
The swap file implementation in the kernel expects to be able to write to the file directly, without the assistance of the
Manual page swapon(8) line 52 (press h for help or q to quit)

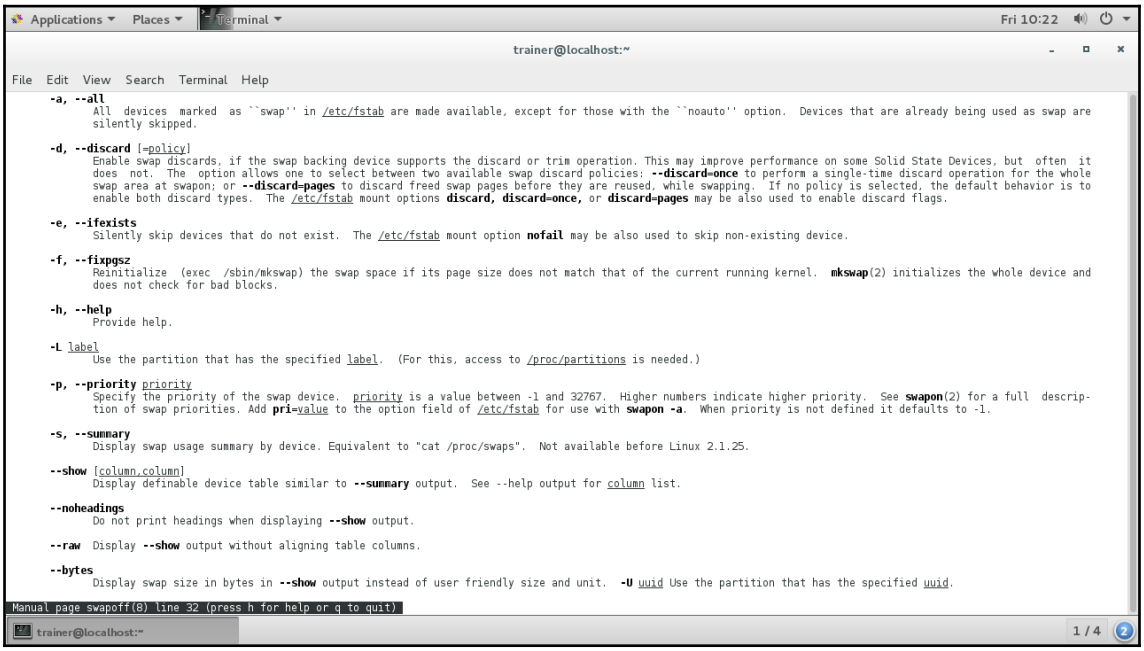

Applications
Places
Terminal
Fri 10:10
trainer@localhost:~
File Edit View Search Terminal Help
-a, --all
All devices marked as ``swap'' in /etc/fstab are made available, except for those with the ``noauto'' option. Devices that are already being used as swap are silently skipped.
-d, --discard [=policy]
Enable swap discards, if the swap backing device supports the discard or trim operation. This may improve performance on some Solid State Devices, but often it does not. The option allows one to select between two available swap discard policies: --discard=once to perform a single-time discard operation for the whole swap area at swapon; or --discard=pages to discard freed swap pages before they are reused, while swapping. If no policy is selected, the default behavior is to enable both discard types. The /etc/fstab mount options discard, discard=once, or discard=pages may be also used to enable discard flags.
-e, --ifexists
Silently skip devices that do not exist. The /etc/fstab mount option nofail may be also used to skip non-existing device.
-f, --fixpgsz
Reinitialize (exec /sbin/mkswap) the swap space if its page size does not match that of the current running kernel. mkswap(2) initializes the whole device and does not check for bad blocks.
-h, --help
Provide help.
-L label
Use the partition that has the specified label. (For this, access to /proc/partitions is needed.)
-p, --priority priority
Specify the priority of the swap device. priority is a value between -1 and 32767. Higher numbers indicate higher priority. See swapon(2) for a full descrip-
tion of swap priorities. Add pri=value to the option field of /etc/fstab for use with swapon -a. When priority is not defined it defaults to -1.
-s, --summary
Display swap usage summary by device. Equivalent to "cat /proc/swaps". Not available before Linux 2.1.25.
--show [column,column]
Display definable device table similar to --summary output. See --help output for column list.
--noheadings
Do not print headings when displaying --show output.
--raw Display --show output without aligning table columns.
--bytes
Display swap size in bytes in --show output instead of user friendly size and unit. -U uuid Use the partition that has the specified uuid.
Manual page swapon(8) line 30 (press h for help or q to quit)
trainer@localhost:~
1 / 4

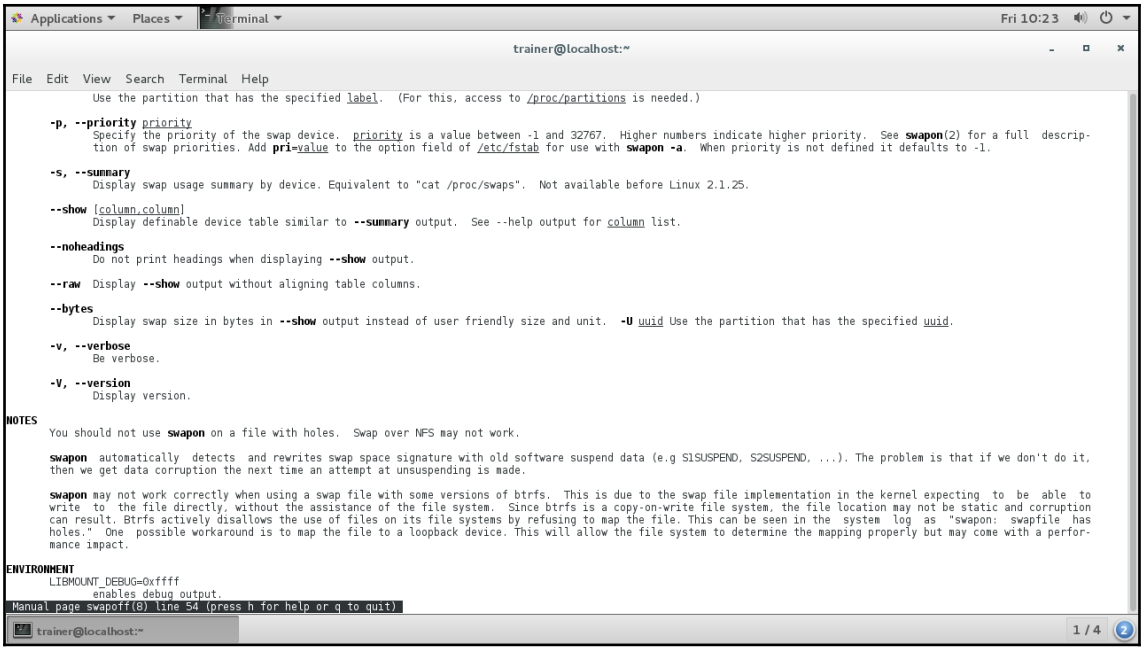

Applications
Places
Terminal
Fri 10:13
trainer@localhost:~
File Edit View Search Terminal Help
-h, --help
Provide help.
-L label
Use the partition that has the specified label. (For this, access to /proc/partitions is needed.)
-p, --priority priority
Specify the priority of the swap device. priority is a value between -1 and 32767. Higher numbers indicate higher priority. See swapon(2) for a full descrip-
tion of swap priorities. Add pri=value to the option field of /etc/fstab for use with swapon -a. When priority is not defined it defaults to -1.
-s, --summary
Display swap usage summary by device. Equivalent to "cat /proc/swaps". Not available before Linux 2.1.25.
--show [column,column]
Display definable device table similar to --summary output. See --help output for column list.
--noheadings
Do not print headings when displaying --show output.
--raw Display --show output without aligning table columns.
--bytes
Display swap size in bytes in --show output instead of user friendly size and unit. -U uuid Use the partition that has the specified uuid.
-v, --verbose
Be verbose.
-V, --version
Display version.
NOTES
You should not use swapon on a file with holes. Swap over NFS may not work.
swapon automatically detects and rewrites swap space signature with old software suspend data (e.g S1SUSPEND, S2SUSPEND, ...). The problem is that if we don't do it, then we get data corruption the next time an attempt at unsuspending is made.
swapon may not work correctly when using a swap file with some versions of btrfs. This is due to the swap file implementation in the kernel expecting to be able to write to the file directly, without the assistance of the file system. Since btrfs is a copy-on-write file system, the file location may not be static and corruption can result. Btrfs actively disallows the use of files on its file systems by refusing to map the file. This can be seen in the system log as "swapon: swapfile has holes." One possible workaround is to map the file to a loopback device. This will allow the file system to determine the mapping properly but may come with a perfor-
Manual page swapon(8) line 49 (press h for help or q to quit)
trainer@localhost:~
1 / 4

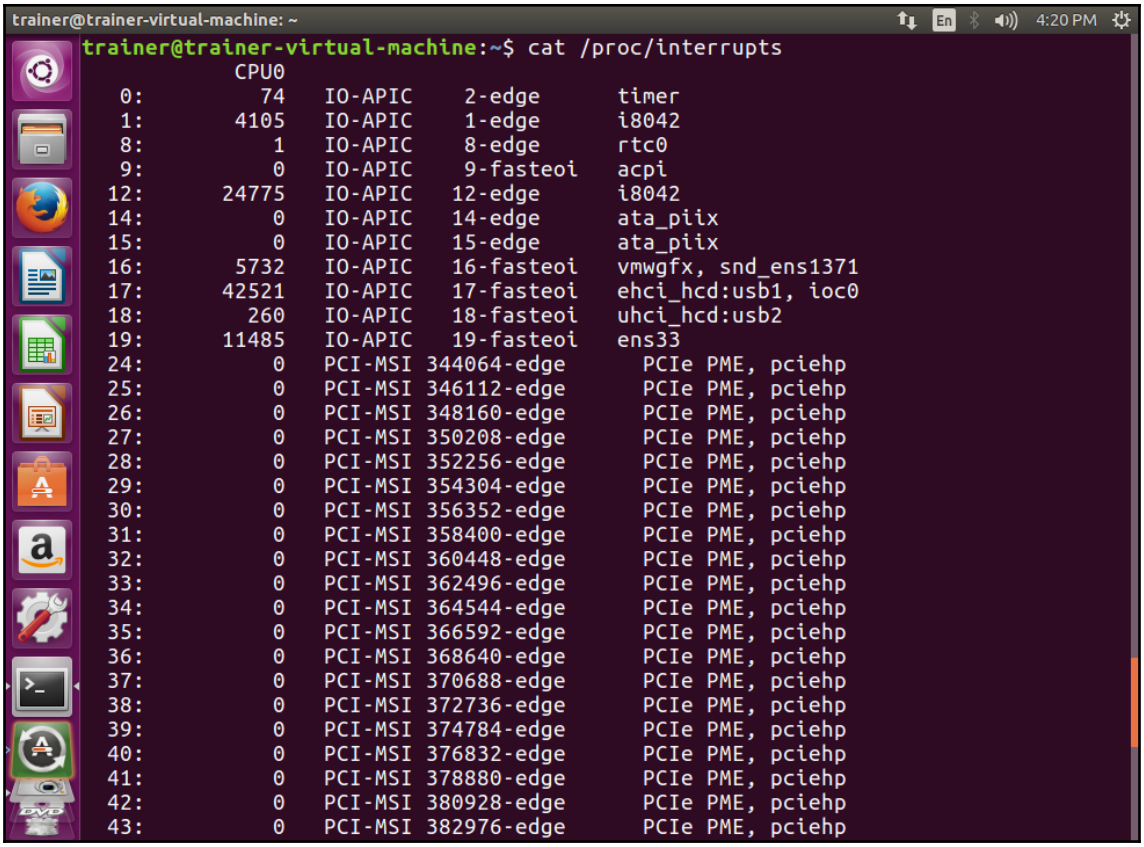

trainer@trainer-virtual-machine: ~
9:19 AM
trainer@trainer-virtual-machine:~$ cat /proc/swaps
Filename Type Size Used Priority
/dev/sda4 partition 6126588 4800 -1
trainer@trainer-virtual-machine:~$

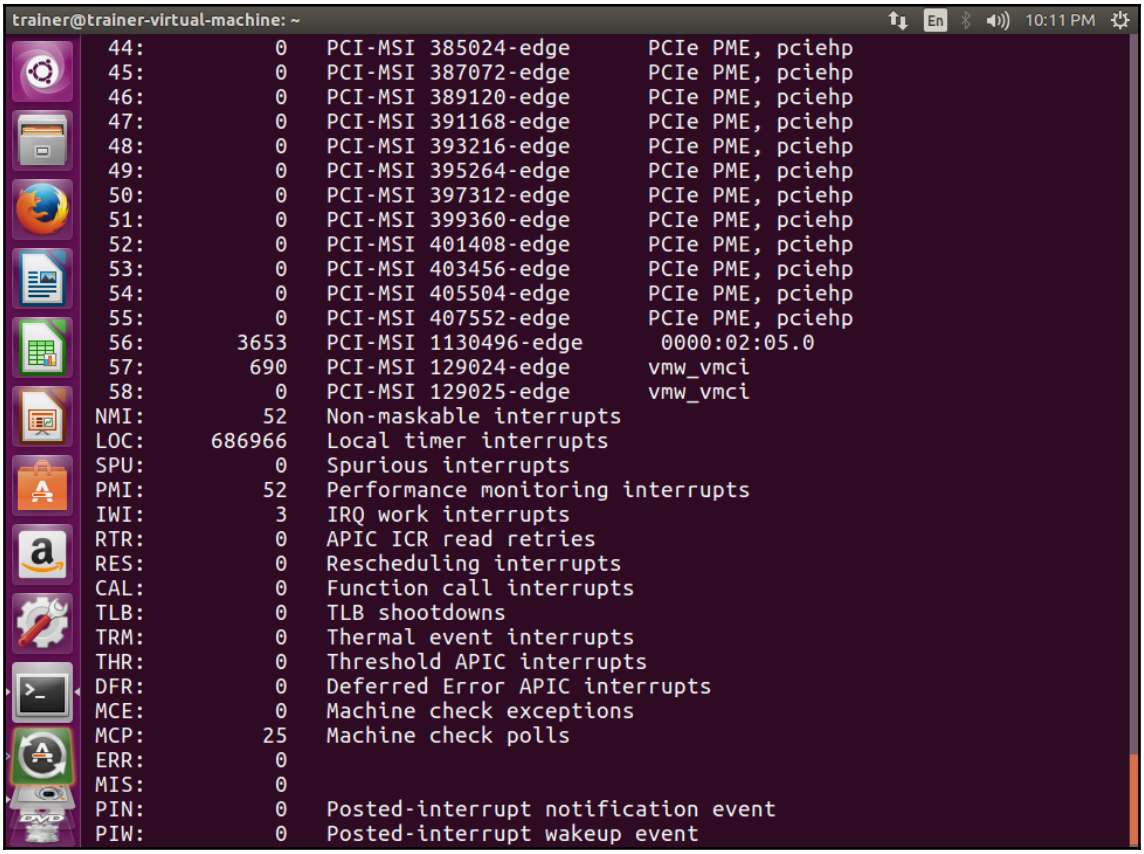

trainer@trainer-virtual-machine: ~
10:18 AM
-a, --all
All devices marked as ``swap'' in /etc/fstab are made available, except for those with the ``noauto'' option. Devices that are already being used as swap are silently skipped.
-d, --discard[=policy]
Enable swap discards, if the swap backing device supports the discard or trim operation. This may improve performance on some Solid State Devices, but often it does not. The option allows one to select between two available swap discard policies: --discard=once to perform a single-time discard operation for the whole swap area at swapon; or --discard=pages to discard freed swap pages before they are reused, while swapping. If no policy is selected, the default behavior is to enable both discard types. The /etc/fstab mount options discard, discard=once, or discard=pages may also be used to enable discard flags.
-e, --ifexists
Silently skip devices that do not exist. The /etc/fstab mount option nofail may also be used to skip non-existing device.
-f, --fixpgsz
Reinitialize (exec mkswap) the swap space if its page size does not match that of the current running kernel. mkswap(2) initializes the whole device and does not check for bad blocks.
-h, --help
Display help text and exit.
-L label
Use the partition that has the specified label. (For this, access to /proc/partitions is needed.)
-o, --options opts
Specify swap options by an fstab-compatible comma-separated string. For example:
swapon -o pri=1,discard=pages,nofail /dev/sda2
The opts string is evaluated last and overrides all other options.
-p, --priority priority
Specify the priority of the swap device. priority is a value between -1 and 32767. Higher numbers indicate higher priority. See swapon(2) for a full description of swap priorities. Add pri=value to the option field of /etc/fstab for use with swapon -a. When no priority is defined, it defaults to -1.
-s, --summary
Manual page swapoff(8) line 23 (press h for help or q to quit)

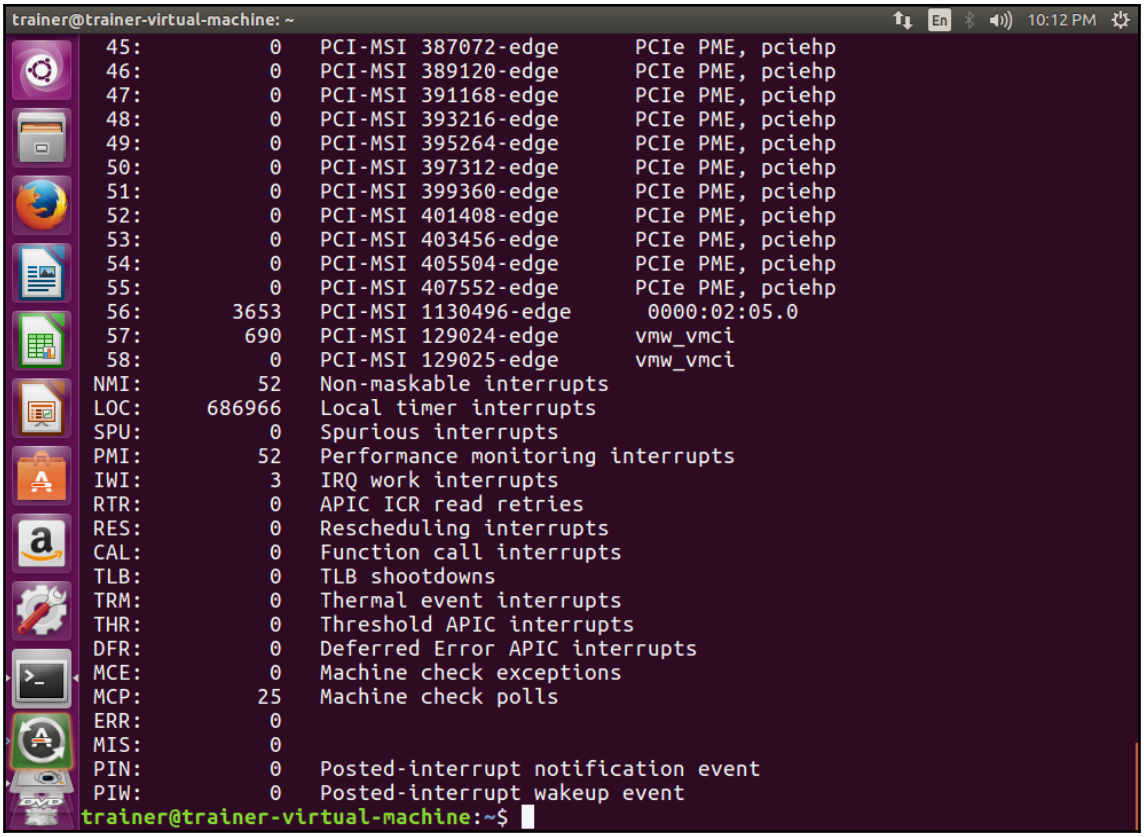

trainer@trainer-virtual-machine: ~
10:19 AM
The opts string is evaluated last and overrides all other options.
-p, --priority priority
Specify the priority of the swap device. priority is a value between -1 and 32767. Higher numbers indicate higher priority. See swapon(2) for a full description of swap priorities. Add pri=value to the option field of /etc/fstab for use with swapon -a. When no priority is defined, it defaults to -1.
-s, --summary
Display swap usage summary by device. Equivalent to "cat /proc/swaps". Not available before Linux 2.1.25. This output format is DEPRECATED in favour of --show that provides better control on output data.
--show[=column...]
Display a definable table of swap areas. See the --help output for a list of available columns.
--noheadings
Do not print headings when displaying --show output.
--raw Display --show output without aligning table columns.
--bytes
Display swap size in bytes in --show output instead of in user-friendly units.
-U uuid
Use the partition that has the specified uuid.
-v, --verbose
Be verbose.
-V, --version
Display version information and exit.
NOTES
You should not use swapon on a file with holes. This can be seen in the system log as
swapon: swapfile has holes.
The swap file implementation in the kernel expects to be able to write to the file directly, without the assistance of the filesystem. This is a problem on preallocated files (e.g. fallocate(1)) on filesystems like XFS or ext4, and on copy-on-write filesystems like btrfs.
Manual page swapoff(8) line 54 (press h for help or q to quit)


Applications
Places
Terminal
Fri 10:22
trainer@localhost:~
File Edit View Search Terminal Help
-a, --all
All devices marked as ``swap'' in /etc/fstab are made available, except for those with the ``noauto'' option. Devices that are already being used as swap are silently skipped.
-d, --discard [=policy]
Enable swap discards, if the swap backing device supports the discard or trim operation. This may improve performance on some Solid State Devices, but often it does not. The option allows one to select between two available swap discard policies: --discard=once to perform a single-time discard operation for the whole swap area at swapon; or --discard=pages to discard freed swap pages before they are reused, while swapping. If no policy is selected, the default behavior is to enable both discard types. The /etc/fstab mount options discard, discard=once, or discard=pages may be also used to enable discard flags.
-e, --ifexists
Silently skip devices that do not exist. The /etc/fstab mount option nofail may be also used to skip non-existing device.
-f, --fixpgsz
Reinitialize (exec /sbin/mkswap) the swap space if its page size does not match that of the current running kernel. mkswap(2) initializes the whole device and does not check for bad blocks.
-h, --help
Provide help.
-L label
Use the partition that has the specified label. (For this, access to /proc/partitions is needed.)
-p, --priority priority
Specify the priority of the swap device. priority is a value between -1 and 32767. Higher numbers indicate higher priority. See swapon(2) for a full description of swap priorities. Add pri=value to the option field of /etc/fstab for use with swapon -a. When priority is not defined it defaults to -1.
-s, --summary
Display swap usage summary by device. Equivalent to "cat /proc/swaps". Not available before Linux 2.1.25.
--show [column,column]
Display definable device table similar to --summary output. See --help output for column list.
--noheadings
Do not print headings when displaying --show output.
--raw Display --show output without aligning table columns.
--bytes
Display swap size in bytes in --show output instead of user friendly size and unit. -U uuid Use the partition that has the specified uuid.
Manual page swapoff(8) line 32 (press h for help or q to quit)
trainer@localhost:~
1 / 4


Applications
Places
Terminal
Fri 10:23
trainer@localhost:~
File Edit View Search Terminal Help
Use the partition that has the specified label. (For this, access to /proc/partitions is needed.)
-p, --priority priority
Specify the priority of the swap device. priority is a value between -1 and 32767. Higher numbers indicate higher priority. See swapon(2) for a full descrip-
tion of swap priorities. Add pri=value to the option field of /etc/fstab for use with swapon -a. When priority is not defined it defaults to -1.
-s, --summary
Display swap usage summary by device. Equivalent to "cat /proc/swaps". Not available before Linux 2.1.25.
--show [column,column]
Display definable device table similar to --summary output. See --help output for column list.
--noheadings
Do not print headings when displaying --show output.
--raw Display --show output without aligning table columns.
--bytes
Display swap size in bytes in --show output instead of user friendly size and unit. -U uuid Use the partition that has the specified uuid.
-v, --verbose
Be verbose.
-V, --version
Display version.
NOTES
You should not use swapon on a file with holes. Swap over NFS may not work.
swapon automatically detects and rewrites swap space signature with old software suspend data (e.g S1SUSPEND, S2SUSPEND, ...). The problem is that if we don't do it,
then we get data corruption the next time an attempt at unsuspending is made.
swapon may not work correctly when using a swap file with some versions of btrfs. This is due to the swap file implementation in the kernel expecting to be able to
write to the file directly, without the assistance of the file system. Since btrfs is a copy-on-write file system, the file location may not be static and corruption
can result. Btrfs actively disallows the use of files on its file systems by refusing to map the file. This can be seen in the system log as "swapon: swapfile has
holes." One possible workaround is to map the file to a loopback device. This will allow the file system to determine the mapping properly but may come with a perfor-
mance impact.
ENVIRONMENT
LIBMOUNT_DEBUG=0xffff
enables debug output.
Manual page swapoff(8) line 54 (press h for help or q to quit)
trainer@localhost:~
1 / 4


trainer@trainer-virtual-machine: ~
En
4:20 PM
trainer@trainer-virtual-machine:~$ cat /proc/interrupts
CPU0
0: 74 IO-APIC 2-edge timer
1: 4105 IO-APIC 1-edge i8042
8: 1 IO-APIC 8-edge rtc0
9: 0 IO-APIC 9-fasteoi acpi
12: 24775 IO-APIC 12-edge i8042
14: 0 IO-APIC 14-edge ata_piix
15: 0 IO-APIC 15-edge ata_piix
16: 5732 IO-APIC 16-fasteoi vmwgfx, snd_ens1371
17: 42521 IO-APIC 17-fasteoi ehci_hcd:usb1, ioc0
18: 260 IO-APIC 18-fasteoi uhci_hcd:usb2
19: 11485 IO-APIC 19-fasteoi ens33
24: 0 PCI-MSI 344064-edge PCIe PME, pciehp
25: 0 PCI-MSI 346112-edge PCIe PME, pciehp
26: 0 PCI-MSI 348160-edge PCIe PME, pciehp
27: 0 PCI-MSI 350208-edge PCIe PME, pciehp
28: 0 PCI-MSI 352256-edge PCIe PME, pciehp
29: 0 PCI-MSI 354304-edge PCIe PME, pciehp
30: 0 PCI-MSI 356352-edge PCIe PME, pciehp
31: 0 PCI-MSI 358400-edge PCIe PME, pciehp
32: 0 PCI-MSI 360448-edge PCIe PME, pciehp
33: 0 PCI-MSI 362496-edge PCIe PME, pciehp
34: 0 PCI-MSI 364544-edge PCIe PME, pciehp
35: 0 PCI-MSI 366592-edge PCIe PME, pciehp
36: 0 PCI-MSI 368640-edge PCIe PME, pciehp
37: 0 PCI-MSI 370688-edge PCIe PME, pciehp
38: 0 PCI-MSI 372736-edge PCIe PME, pciehp
39: 0 PCI-MSI 374784-edge PCIe PME, pciehp
40: 0 PCI-MSI 376832-edge PCIe PME, pciehp
41: 0 PCI-MSI 378880-edge PCIe PME, pciehp
42: 0 PCI-MSI 380928-edge PCIe PME, pciehp
43: 0 PCI-MSI 382976-edge PCIe PME, pciehp


trainer@trainer-virtual-machine: ~
En
10:11 PM
44: 0 PCI-MSI 385024-edge PCIe PME, pciehp
45: 0 PCI-MSI 387072-edge PCIe PME, pciehp
46: 0 PCI-MSI 389120-edge PCIe PME, pciehp
47: 0 PCI-MSI 391168-edge PCIe PME, pciehp
48: 0 PCI-MSI 393216-edge PCIe PME, pciehp
49: 0 PCI-MSI 395264-edge PCIe PME, pciehp
50: 0 PCI-MSI 397312-edge PCIe PME, pciehp
51: 0 PCI-MSI 399360-edge PCIe PME, pciehp
52: 0 PCI-MSI 401408-edge PCIe PME, pciehp
53: 0 PCI-MSI 403456-edge PCIe PME, pciehp
54: 0 PCI-MSI 405504-edge PCIe PME, pciehp
55: 0 PCI-MSI 407552-edge PCIe PME, pciehp
56: 3653 PCI-MSI 1130496-edge 0000:02:05.0
57: 690 PCI-MSI 129024-edge vmw_vmci
58: 0 PCI-MSI 129025-edge vmw_vmci
NMI: 52 Non-maskable interrupts
LOC: 686966 Local timer interrupts
SPU: 0 Spurious interrupts
PMI: 52 Performance monitoring interrupts
IWI: 3 IRQ work interrupts
RTR: 0 APIC ICR read retries
RES: 0 Rescheduling interrupts
CAL: 0 Function call interrupts
TLB: 0 TLB shootdowns
TRM: 0 Thermal event interrupts
THR: 0 Threshold APIC interrupts
DFR: 0 Deferred Error APIC interrupts
MCE: 0 Machine check exceptions
MCP: 25 Machine check polls
ERR: 0
MIS: 0
PIN: 0 Posted-interrupt notification event
PIW: 0 Posted-interrupt wakeup event


trainer@trainer-virtual-machine: ~
En
10:12 PM
45: 0 PCI-MSI 387072-edge PCIe PME, pciehp
46: 0 PCI-MSI 389120-edge PCIe PME, pciehp
47: 0 PCI-MSI 391168-edge PCIe PME, pciehp
48: 0 PCI-MSI 393216-edge PCIe PME, pciehp
49: 0 PCI-MSI 395264-edge PCIe PME, pciehp
50: 0 PCI-MSI 397312-edge PCIe PME, pciehp
51: 0 PCI-MSI 399360-edge PCIe PME, pciehp
52: 0 PCI-MSI 401408-edge PCIe PME, pciehp
53: 0 PCI-MSI 403456-edge PCIe PME, pciehp
54: 0 PCI-MSI 405504-edge PCIe PME, pciehp
55: 0 PCI-MSI 407552-edge PCIe PME, pciehp
56: 3653 PCI-MSI 1130496-edge 0000:02:05.0
57: 690 PCI-MSI 129024-edge vmw_vmci
58: 0 PCI-MSI 129025-edge vmw_vmci
NMI: 52 Non-maskable interrupts
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TRM: 0 Thermal event interrupts
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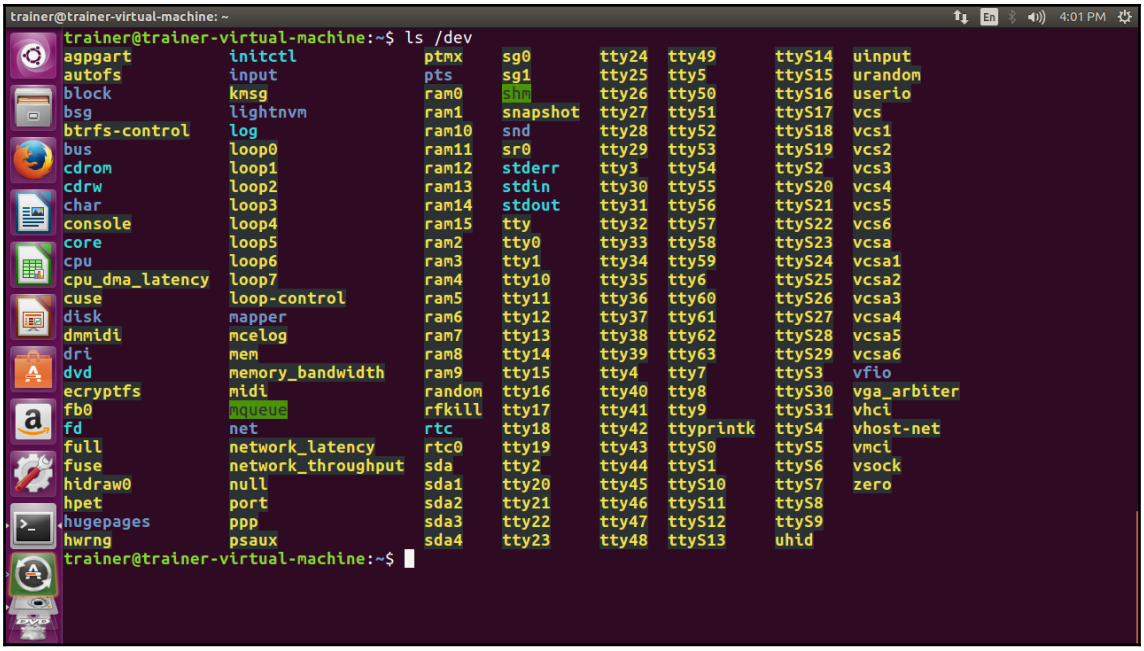
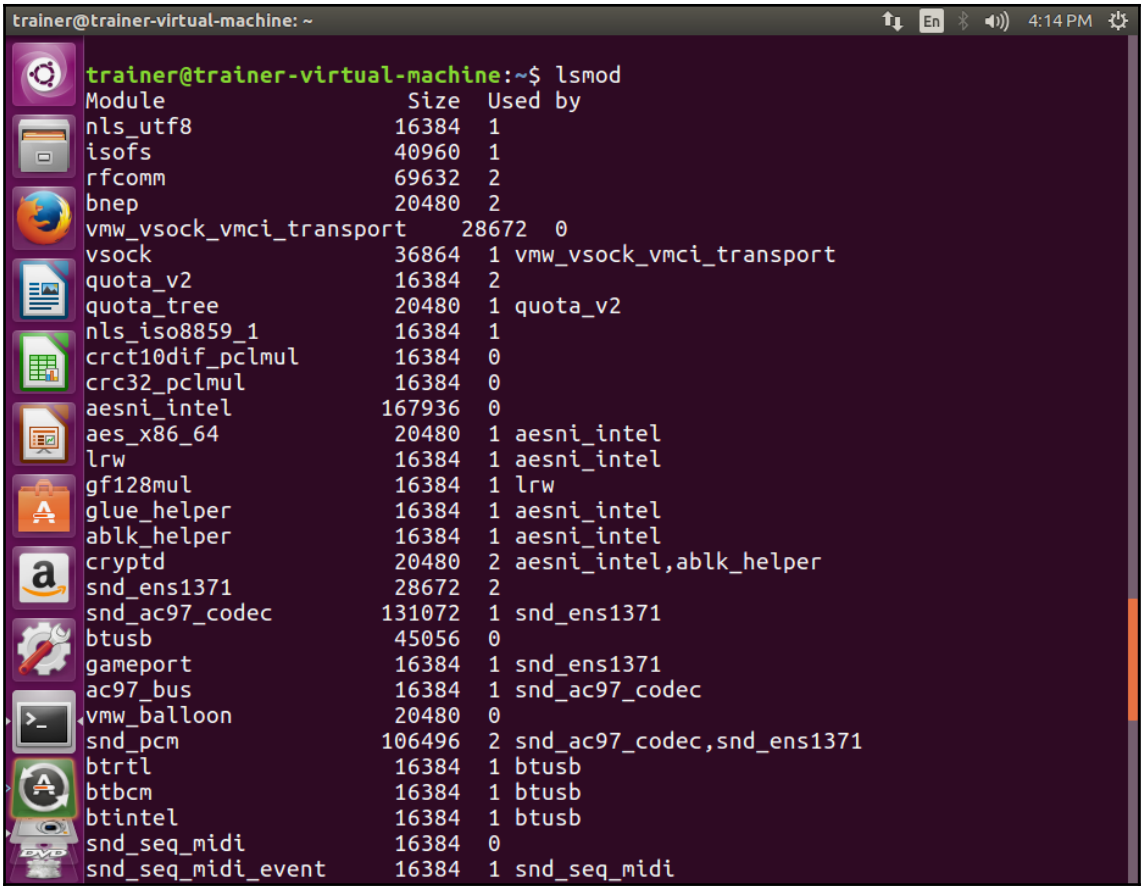
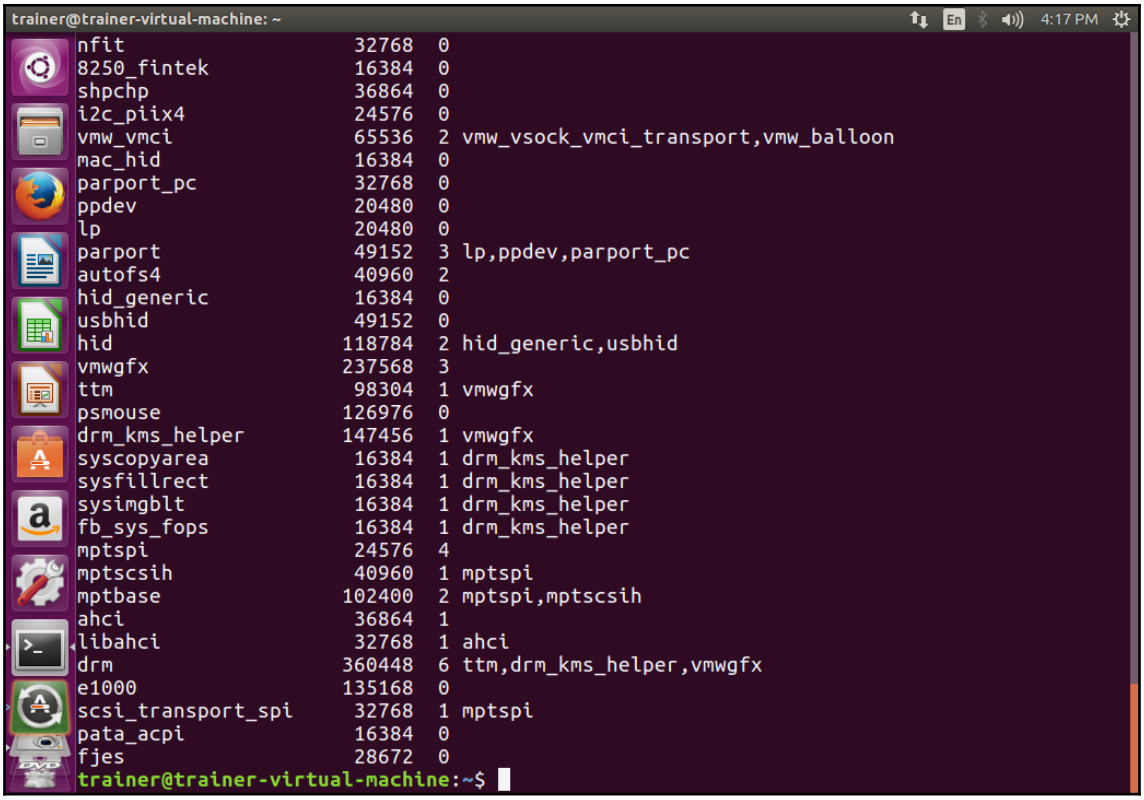
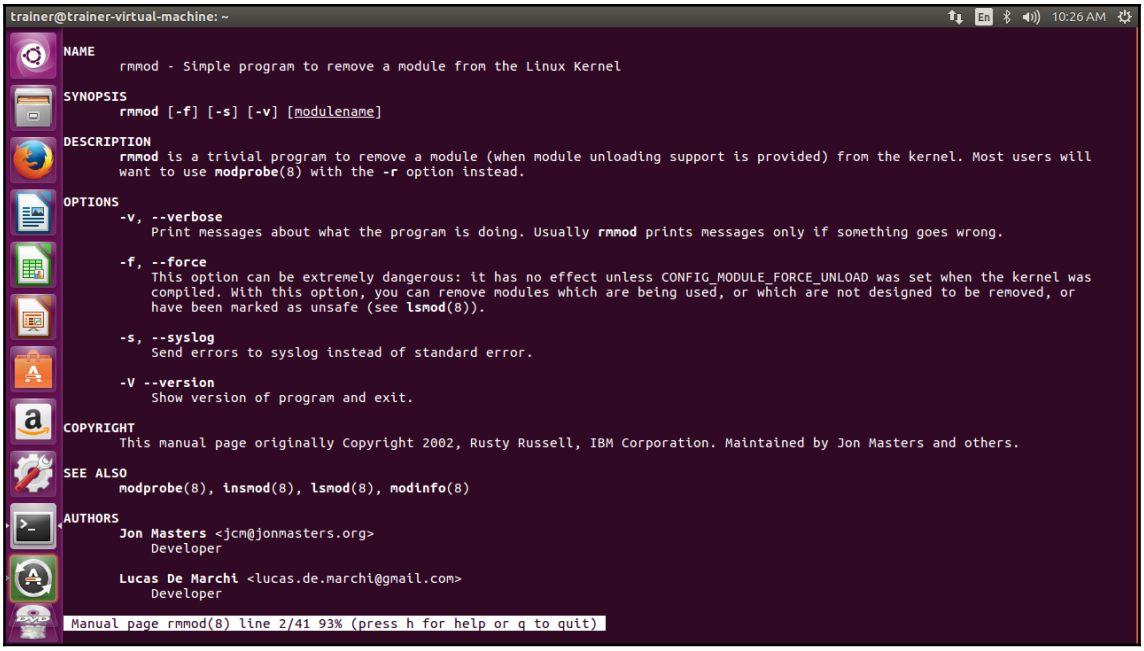
DFR: 0 Deferred Error APIC interrupts
MCE: 0 Machine check exceptions
MCP: 25 Machine check polls
ERR: 0
MIS: 0
PIN: 0 Posted-interrupt notification event
PIW: 0 Posted-interrupt wakeup event
trainer@trainer-virtual-machine:~$

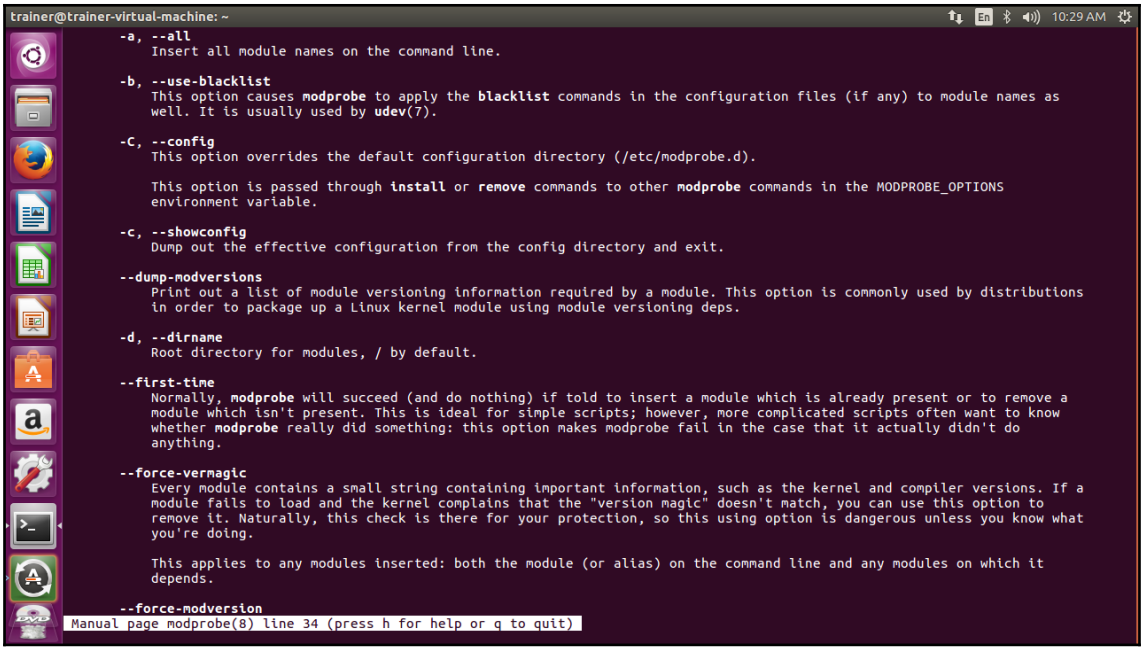

trainer@trainer-virtual-machine: ~
En
4:01 PM
trainer@trainer-virtual-machine:~$ ls /dev
agpgart initctl ptmx sg0 tty24 tty49 ttyS14 uinput
autofs input pts sg1 tty25 tty5 ttyS15 urandom
block kmsg ram0 shm tty26 tty50 ttyS16 userio
bsg lightnvm ram1 snapshot tty27 tty51 ttyS17 vcs
btrfs-control log ram10 snd tty28 tty52 ttyS18 vcs1
bus loop0 ram11 sr0 tty29 tty53 ttyS19 vcs2
cdrom loop1 ram12 stderr tty3 tty54 ttyS2 vcs3
cdrw loop2 ram13 stdin tty30 tty55 ttyS20 vcs4
char loop3 ram14 stdout tty31 tty56 ttyS21 vcs5
console loop4 ram15 tty tty32 tty57 ttyS22 vcs6
core loop5 ram2 tty0 tty33 tty58 ttyS23 vcsa
cpu loop6 ram3 tty1 tty34 tty59 ttyS24 vcsa1
cpu_dma_latency loop7 ram4 tty10 tty35 tty6 ttyS25 vcsa2
cuse loop-control ram5 tty11 tty36 tty60 ttyS26 vcsa3
disk mapper ram6 tty12 tty37 tty61 ttyS27 vcsa4
dmmidi mcelog ram7 tty13 tty38 tty62 ttyS28 vcsa5
dri mem ram8 tty14 tty39 tty63 ttyS29 vcsa6
dvd memory_bandwidth ram9 tty15 tty4 tty7 ttyS3 vfio
ecryptfs midi random tty16 tty40 tty8 ttyS30 vga_arbiter
fb0 mqueue rfkill tty17 tty41 tty9 ttyS31 vhci
fd net rtc tty18 tty42 ttyprintk ttyS4 vhost-net
full network_latency rtc0 tty19 tty43 ttyS0 ttyS5 vmci
fuse network_throughput sda tty2 tty44 ttyS1 ttyS6 vsock
hidraw0 null sda1 tty20 tty45 ttyS10 ttyS7 zero
hpet port sda2 tty21 tty46 ttyS11 ttyS8
hugepages ppp sda3 tty22 tty47 ttyS12 ttyS9
hwrng psaux sda4 tty23 tty48 ttyS13 uhid
trainer@trainer-virtual-machine:~$

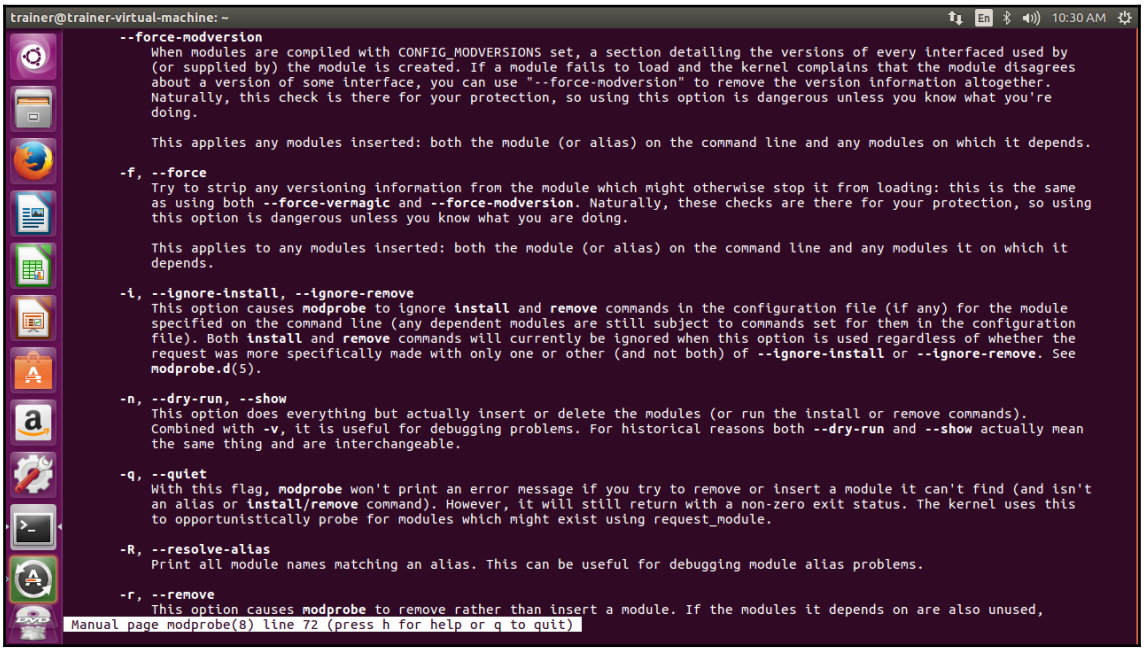

trainer@trainer-virtual-machine: ~
En
4:14 PM
trainer@trainer-virtual-machine:~$ lsmod
Module Size Used by
nls_utf8 16384 1
isofs 40960 1
rfcomm 69632 2
bnep 20480 2
vmw_vsock_vmci_transport 28672 0
vsock 36864 1 vmw_vsock_vmci_transport
quota_v2 16384 2
quota_tree 20480 1 quota_v2
nls_iso8859_1 16384 1
crct10dif_pclmul 16384 0
crc32_pclmul 16384 0
aesni_intel 167936 0
aes_x86_64 20480 1 aesni_intel
lrw 16384 1 aesni_intel
gf128mul 16384 1 lrw
glue_helper 16384 1 aesni_intel
ablk_helper 16384 1 aesni_intel
cryptd 20480 2 aesni_intel,ablk_helper
snd_ens1371 28672 2
snd_ac97_codec 131072 1 snd_ens1371
btusb 45056 0
gameport 16384 1 snd_ens1371
ac97_bus 16384 1 snd_ac97_codec
vmw_balloon 20480 0
snd_pcm 106496 2 snd_ac97_codec,snd_ens1371
btrtl 16384 1 btusb
btbcm 16384 1 btusb
btintel 16384 1 btusb
snd_seq_midi 16384 0
snd_seq_midi_event 16384 1 snd_seq_midi


trainer@trainer-virtual-machine: ~
En
4:17 PM
nfit 32768 0
8250_fintek 16384 0
shpchp 36864 0
i2c_piix4 24576 0
vmw_vmci 65536 2 vmw_vsock_vmci_transport,vmw_balloon
mac_hid 16384 0
parport_pc 32768 0
ppdev 20480 0
lp 20480 0
parport 49152 3 lp,ppdev,parport_pc
autofs4 40960 2
hid_generic 16384 0
usbhid 49152 0
hid 118784 2 hid_generic,usbhid
vmwgfx 237568 3
ttm 98304 1 vmwgfx
psmouse 126976 0
drm_kms_helper 147456 1 vmwgfx
syscopyarea 16384 1 drm_kms_helper
sysfillrect 16384 1 drm_kms_helper
sysimgblt 16384 1 drm_kms_helper
fb_sys_fops 16384 1 drm_kms_helper
mptspi 24576 4
mptscsih 40960 1 mptspi
mptbase 102400 2 mptspi,mptscsih
ahci 36864 1
libahci 32768 1 ahci
drm 360448 6 ttm,drm_kms_helper,vmwgfx
e1000 135168 0
scsi_transport_spi 32768 1 mptspi
pata_acpi 16384 0
fjes 28672 0
trainer@trainer-virtual-machine:~$

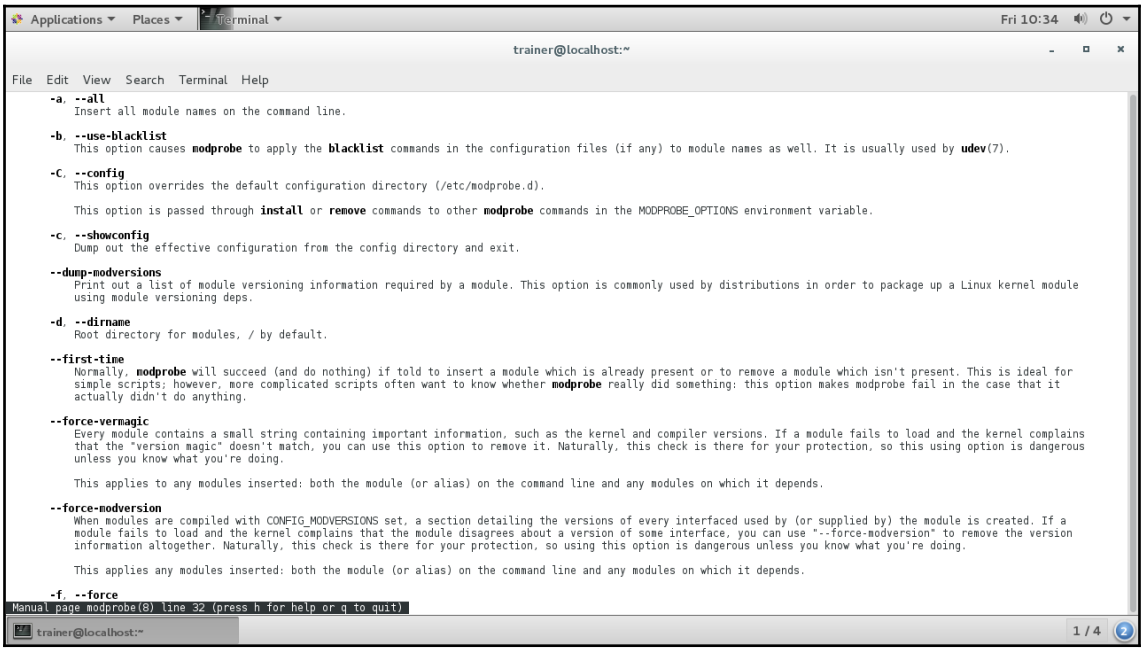

trainer@trainer-virtual-machine: ~
10:26 AM
NAME
rmmod - Simple program to remove a module from the Linux Kernel
SYNOPSIS
rmmod [-f] [-s] [-v] [modulename]
DESCRIPTION
rmmod is a trivial program to remove a module (when module unloading support is provided) from the kernel. Most users will want to use modprobe(8) with the -r option instead.
OPTIONS
-v, --verbose
Print messages about what the program is doing. Usually rmmod prints messages only if something goes wrong.
-f, --force
This option can be extremely dangerous: it has no effect unless CONFIG_MODULE_FORCE_UNLOAD was set when the kernel was compiled. With this option, you can remove modules which are being used, or which are not designed to be removed, or have been marked as unsafe (see lsmod(8)).
-s, --syslog
Send errors to syslog instead of standard error.
-V --version
Show version of program and exit.
COPYRIGHT
This manual page originally Copyright 2002, Rusty Russell, IBM Corporation. Maintained by Jon Masters and others.
SEE ALSO
modprobe(8), insmod(8), lsmod(8), modinfo(8)
AUTHORS
Jon Masters <jcm@jonmasters.org>
Developer
Lucas De Marchi <lucas.de.marchi@gmail.com>
Developer
Manual page rmmod(8) line 2/41 93% (press h for help or q to quit)

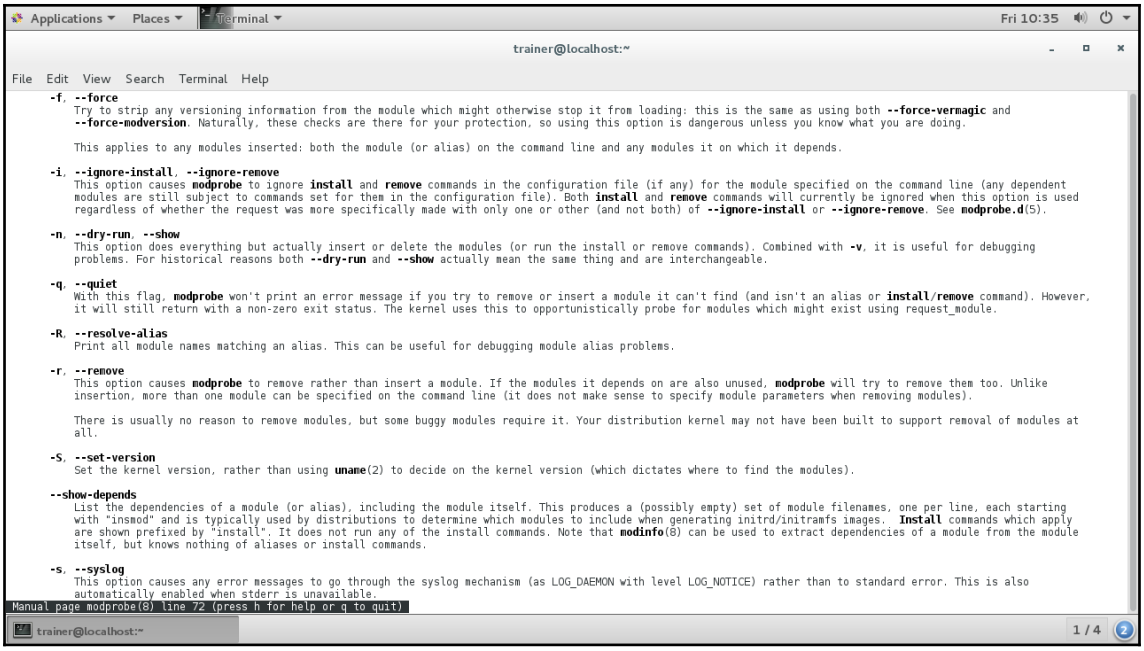

Applications
Places
Terminal
Fri 10:27
trainer@localhost:~
File Edit View Search Terminal Help
RMMOD(8) rmmod RMMOD(8)
NAME
rmmod - Simple program to remove a module from the Linux Kernel
SYNOPSIS
rmmod [-f] [-s] [-v] [modulename]
DESCRIPTION
rmmod is a trivial program to remove a module (when module unloading support is provided) from the kernel. Most users will want to use modprobe(8) with the -r option instead.
OPTIONS
-v, --verbose
Print messages about what the program is doing. Usually rmmod prints messages only if something goes wrong.
-f, --force
This option can be extremely dangerous: it has no effect unless CONFIG_MODULE_FORCE_UNLOAD was set when the kernel was compiled. With this option, you can remove modules which are being used, or which are not designed to be removed, or have been marked as unsafe (see lsmod(8)).
-s, --syslog
Send errors to syslog instead of standard error.
-V --version
Show version of program and exit.
COPYRIGHT
This manual page originally Copyright 2002, Rusty Russell, IBM Corporation. Maintained by Jon Masters and others.
SEE ALSO
modprobe(8), insmod(8), lsmod(8)modinfo(8)
AUTHORS
Jon Masters <jcm@jonmasters.org>
Developer
Lucas De Marchi <lucas.de.marchi@gmail.com>
Developer
kmod 03/01/2015 RMMOD(8)
Manual page rmmod(8) line 1/44 (END) (press h for help or q to quit)
trainer@localhost:~
1 / 4

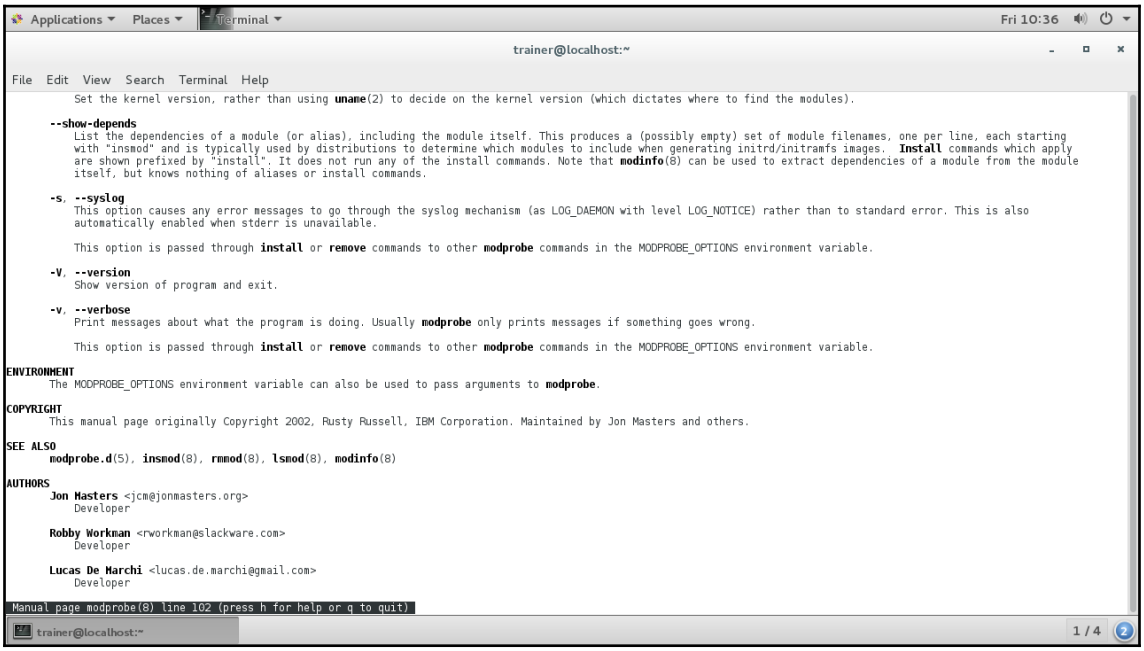

trainer@trainer-virtual-machine: ~
10:29 AM
-a, --all
Insert all module names on the command line.
-b, --use-blacklist
This option causes modprobe to apply the blacklist commands in the configuration files (if any) to module names as well. It is usually used by udev(7).
-C, --config
This option overrides the default configuration directory (/etc/modprobe.d).
This option is passed through install or remove commands to other modprobe commands in the MODPROBE_OPTIONS environment variable.
-c, --showconfig
Dump out the effective configuration from the config directory and exit.
--dump-modversions
Print out a list of module versioning information required by a module. This option is commonly used by distributions in order to package up a Linux kernel module using module versioning deps.
-d, --dirname
Root directory for modules, / by default.
--first-time
Normally, modprobe will succeed (and do nothing) if told to insert a module which is already present or to remove a module which isn't present. This is ideal for simple scripts; however, more complicated scripts often want to know whether modprobe really did something: this option makes modprobe fail in the case that it actually didn't do anything.
--force-vermagic
Every module contains a small string containing important information, such as the kernel and compiler versions. If a module fails to load and the kernel complains that the "version magic" doesn't match, you can use this option to remove it. Naturally, this check is there for your protection, so this using option is dangerous unless you know what you're doing.
This applies to any modules inserted: both the module (or alias) on the command line and any modules on which it depends.
--force-modversion
Manual page modprobe(8) line 34 (press h for help or q to quit)


trainer@trainer-virtual-machine: ~
10:30 AM
--force-modversion
When modules are compiled with CONFIG_MODVERSIONS set, a section detailing the versions of every interfaced used by (or supplied by) the module is created. If a module fails to load and the kernel complains that the module disagrees about a version of some interface, you can use "--force-modversion" to remove the version information altogether. Naturally, this check is there for your protection, so using this option is dangerous unless you know what you're doing.
This applies any modules inserted: both the module (or alias) on the command line and any modules on which it depends.
-f, --force
Try to strip any versioning information from the module which might otherwise stop it from loading: this is the same as using both --force-vermagic and --force-modversion. Naturally, these checks are there for your protection, so using this option is dangerous unless you know what you are doing.
This applies to any modules inserted: both the module (or alias) on the command line and any modules it on which it depends.
-i, --ignore-install, --ignore-remove
This option causes modprobe to ignore install and remove commands in the configuration file (if any) for the module specified on the command line (any dependent modules are still subject to commands set for them in the configuration file). Both install and remove commands will currently be ignored when this option is used regardless of whether the request was more specifically made with only one or other (and not both) of --ignore-install or --ignore-remove. See modprobe.d(5).
-n, --dry-run, --show
This option does everything but actually insert or delete the modules (or run the install or remove commands). Combined with -v, it is useful for debugging problems. For historical reasons both --dry-run and --show actually mean the same thing and are interchangeable.
-q, --quiet
With this flag, modprobe won't print an error message if you try to remove or insert a module it can't find (and isn't an alias or install/remove command). However, it will still return with a non-zero exit status. The kernel uses this to opportunistically probe for modules which might exist using request_module.
-R, --resolve-alias
Print all module names matching an alias. This can be useful for debugging module alias problems.
-r, --remove
This option causes modprobe to remove rather than insert a module. If the modules it depends on are also unused,
Manual page modprobe(8) line 72 (press h for help or q to quit)


trainer@trainer-virtual-machine: ~
En
10:31 AM
-r, --remove
This option causes modprobe to remove rather than insert a module. If the modules it depends on are also unused, modprobe will try to remove them too. Unlike insertion, more than one module can be specified on the command line (it does not make sense to specify module parameters when removing modules).
There is usually no reason to remove modules, but some buggy modules require it. Your distribution kernel may not have been built to support removal of modules at all.
-S, --set-version
Set the kernel version, rather than using uname(2) to decide on the kernel version (which dictates where to find the modules).
--show-depends
List the dependencies of a module (or alias), including the module itself. This produces a (possibly empty) set of module filenames, one per line, each starting with "insmod" and is typically used by distributions to determine which modules to include when generating initrd/initramfs images. Install commands which apply are shown prefixed by "install". It does not run any of the install commands. Note that modinfo(8) can be used to extract dependencies of a module from the module itself, but knows nothing of aliases or install commands.
-s, --syslog
This option causes any error messages to go through the syslog mechanism (as LOG_DAEMON with level LOG_NOTICE) rather than to standard error. This is also automatically enabled when stderr is unavailable.
This option is passed through install or remove commands to other modprobe commands in the MODPROBE_OPTIONS environment variable.
-V, --version
Show version of program and exit.
-v, --verbose
Print messages about what the program is doing. Usually modprobe only prints messages if something goes wrong.
This option is passed through install or remove commands to other modprobe commands in the MODPROBE_OPTIONS environment variable.
ENVIRONMENT
The MODPROBE_OPTIONS environment variable can also be used to pass arguments to modprobe.
COPYRIGHT
Manual page modprobe(8) line 109 (press h for help or q to quit)


Applications
Places
Terminal
Fri 10:34
trainer@localhost:~
File Edit View Search Terminal Help
-a, --all
Insert all module names on the command line.
-b, --use-blacklist
This option causes modprobe to apply the blacklist commands in the configuration files (if any) to module names as well. It is usually used by udev(7).
-C, --config
This option overrides the default configuration directory (/etc/modprobe.d).
This option is passed through install or remove commands to other modprobe commands in the MODPROBE_OPTIONS environment variable.
-c, --showconfig
Dump out the effective configuration from the config directory and exit.
--dump-modversions
Print out a list of module versioning information required by a module. This option is commonly used by distributions in order to package up a Linux kernel module using module versioning deps.
-d, --dirname
Root directory for modules, / by default.
--first-time
Normally, modprobe will succeed (and do nothing) if told to insert a module which is already present or to remove a module which isn't present. This is ideal for simple scripts; however, more complicated scripts often want to know whether modprobe really did something: this option makes modprobe fail in the case that it actually didn't do anything.
--force-vermagic
Every module contains a small string containing important information, such as the kernel and compiler versions. If a module fails to load and the kernel complains that the "version magic" doesn't match, you can use this option to remove it. Naturally, this check is there for your protection, so this using option is dangerous unless you know what you're doing.
This applies to any modules inserted: both the module (or alias) on the command line and any modules on which it depends.
--force-modversion
When modules are compiled with CONFIG_MODVERSIONS set, a section detailing the versions of every interfaced used by (or supplied by) the module is created. If a module fails to load and the kernel complains that the module disagrees about a version of some interface, you can use "--force-modversion" to remove the version information altogether. Naturally, this check is there for your protection, so using this option is dangerous unless you know what you're doing.
This applies any modules inserted: both the module (or alias) on the command line and any modules on which it depends.
-f, --force
Manual page modprobe(8) line 32 (press h for help or q to quit)
trainer@localhost:~
1 / 4


Applications
Places
Terminal
Fri 10:35
trainer@localhost:~
File Edit View Search Terminal Help
-f, --force
Try to strip any versioning information from the module which might otherwise stop it from loading: this is the same as using both --force-vermagic and --force-modversion. Naturally, these checks are there for your protection, so using this option is dangerous unless you know what you are doing.
This applies to any modules inserted: both the module (or alias) on the command line and any modules it on which it depends.
-i, --ignore-install, --ignore-remove
This option causes modprobe to ignore install and remove commands in the configuration file (if any) for the module specified on the command line (any dependent modules are still subject to commands set for them in the configuration file). Both install and remove commands will currently be ignored when this option is used regardless of whether the request was more specifically made with only one or other (and not both) of --ignore-install or --ignore-remove. See modprobe.d(5).
-n, --dry-run, --show
This option does everything but actually insert or delete the modules (or run the install or remove commands). Combined with -v, it is useful for debugging problems. For historical reasons both --dry-run and --show actually mean the same thing and are interchangeable.
-q, --quiet
With this flag, modprobe won't print an error message if you try to remove or insert a module it can't find (and isn't an alias or install/remove command). However, it will still return with a non-zero exit status. The kernel uses this to opportunistically probe for modules which might exist using request_module.
-R, --resolve-alias
Print all module names matching an alias. This can be useful for debugging module alias problems.
-r, --remove
This option causes modprobe to remove rather than insert a module. If the modules it depends on are also unused, modprobe will try to remove them too. Unlike insertion, more than one module can be specified on the command line (it does not make sense to specify module parameters when removing modules).
There is usually no reason to remove modules, but some buggy modules require it. Your distribution kernel may not have been built to support removal of modules at all.
-S, --set-version
Set the kernel version, rather than using uname(2) to decide on the kernel version (which dictates where to find the modules).
--show-depends
List the dependencies of a module (or alias), including the module itself. This produces a (possibly empty) set of module filenames, one per line, each starting with "insmod" and is typically used by distributions to determine which modules to include when generating initrd/initramfs images. Install commands which apply are shown prefixed by "install". It does not run any of the install commands. Note that modinfo(8) can be used to extract dependencies of a module from the module itself, but knows nothing of aliases or install commands.
-s, --syslog
This option causes any error messages to go through the syslog mechanism (as LOG_DAEMON with level LOG_NOTICE) rather than to standard error. This is also automatically enabled when stderr is unavailable.
Manual page modprobe(8) line 72 (press h for help or q to quit)
trainer@localhost:~
1 / 4


Applications
Places
Terminal
Fri 10:36
trainer@localhost:~
File Edit View Search Terminal Help
Set the kernel version, rather than using uname(2) to decide on the kernel version (which dictates where to find the modules).
--show-depends
List the dependencies of a module (or alias), including the module itself. This produces a (possibly empty) set of module filenames, one per line, each starting with "insmod" and is typically used by distributions to determine which modules to include when generating initrd/initramfs images. Install commands which apply are shown prefixed by "install". It does not run any of the install commands. Note that modinfo(8) can be used to extract dependencies of a module from the module itself, but knows nothing of aliases or install commands.
-s, --syslog
This option causes any error messages to go through the syslog mechanism (as LOG_DAEMON with level LOG_NOTICE) rather than to standard error. This is also automatically enabled when stderr is unavailable.
This option is passed through install or remove commands to other modprobe commands in the MODPROBE_OPTIONS environment variable.
-V, --version
Show version of program and exit.
-v, --verbose
Print messages about what the program is doing. Usually modprobe only prints messages if something goes wrong.
This option is passed through install or remove commands to other modprobe commands in the MODPROBE_OPTIONS environment variable.
ENVIRONMENT
The MODPROBE_OPTIONS environment variable can also be used to pass arguments to modprobe.
COPYRIGHT
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SEE ALSO
modprobe.d(5), insmod(8), rmmod(8), lsmod(8), modinfo(8)
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Developer
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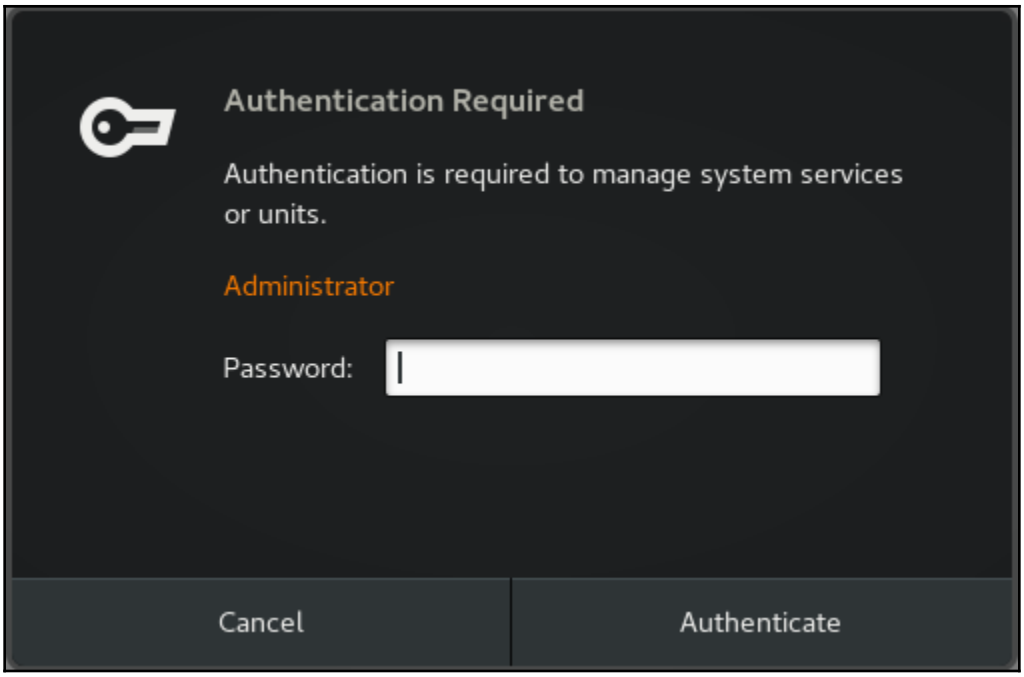
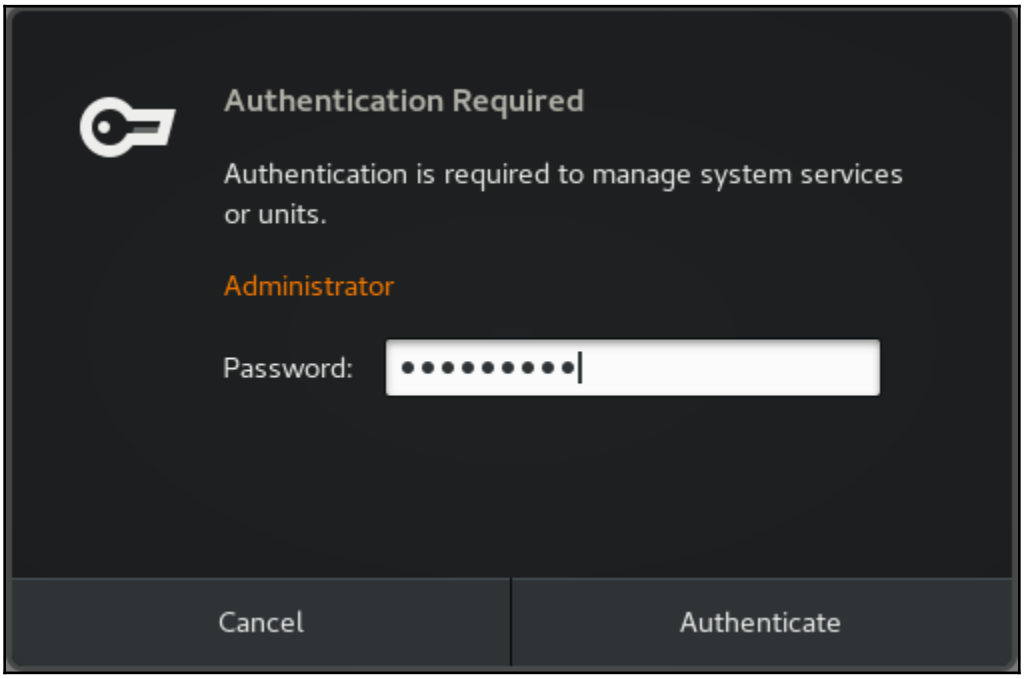
Developer
Manual page modprobe(8) line 102 (press h for help or q to quit)
trainer@localhost:~
1 / 4

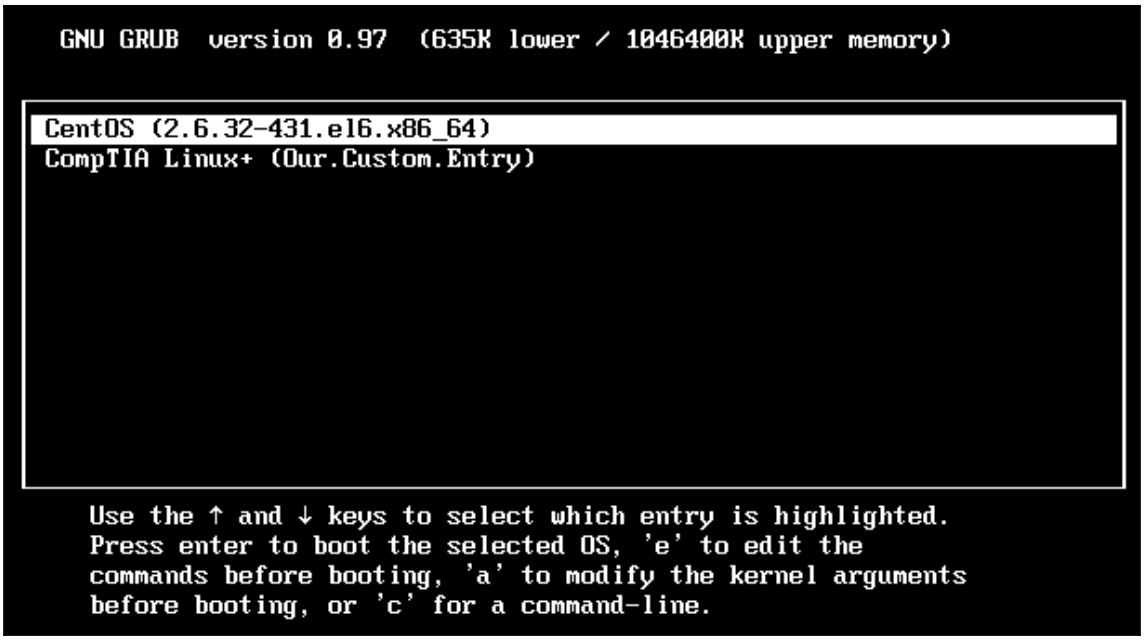
Chapter 2: Booting the System

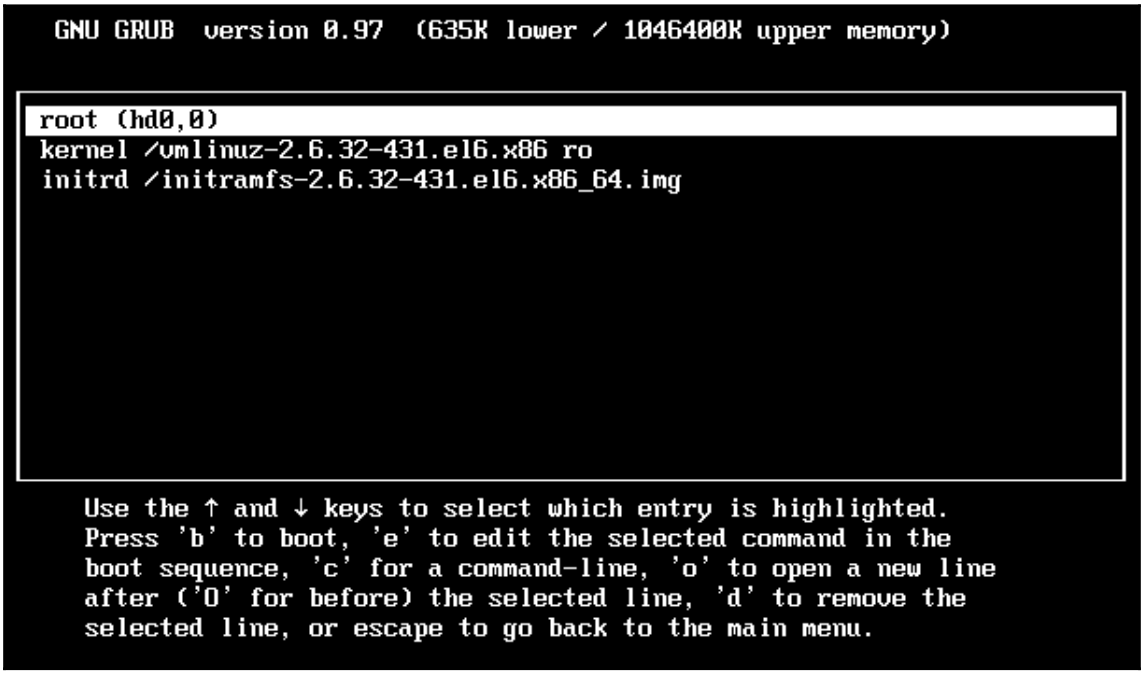
```
[root@localhost philip]# pstree
init─┬─ManagementAgent───2*[{ManagementAgen}]
     ├─NetworkManager─┬─dhclient
     │                └─{NetworkManager}
     ├─VGAuthService
     ├─abrtd
     ├─acpid
     ├─atd
     ├─auditd───{auditd}
     ├─bonobo-activati───{bonobo-activat}
     ├─clock-applet
     ├─console-kit-dae───63*[{console-kit-da}]
     ├─crond
     ├─cupsd
     ├─2*[dbus-daemon───{dbus-daemon}]
     ├─dbus-launch
     ├─devkit-power-da
     ├─dnsmasq
     ├─gconfd-2
     ├─gdm-user-switch
```

```
philip@philip-virtual-machine:~$ pstree
systemd─┬─ModemManager───2*[{ModemManager}]
        ├─NetworkManager───2*[{NetworkManager}]
        ├─VGAuthService
        ├─accounts-daemon───2*[{accounts-daemon}]
        ├─acpid
        ├─avahi-daemon───avahi-daemon
        ├─boltd───2*[{boltd}]
        ├─colord───2*[{colord}]
        ├─cron
        ├─cups-browsed───2*[{cups-browsed}]
        ├─cupsd
        ├─dbus-daemon
        ├─firefox─┬─Web Content───19*[{Web Content}]
        │         ├─Web Content───20*[{Web Content}]
        │         └─52*[{firefox}]
        ├─fwupd───4*[{fwupd}]
        ├─gdm3─┬─gdm-session-wor─┬─gdm-wayland-ses─┬─gnome-session-b─┬─gnome-shell─┬─Xwayland
        │      │                 │                 │                 │             ├─ibus-daemon─┬─ibus-dconf───3*[{ibus-dconf}+
        │      │                 │                 │                 │             │             ├─ibus-engine-sim───2*[{ibus-e+
        │      │                 │                 │                 │             │             └─2*[{ibus-daemon}]
        │      │                 │                 │                 │             └─9*[{gnome-shell}]
```


Authentication Required
Authentication is required to manage system services or units.
Administrator
Password:
Cancel
Authenticate


Authentication Required
Authentication is required to manage system services or units.
Administrator
Password:
Cancel
Authenticate

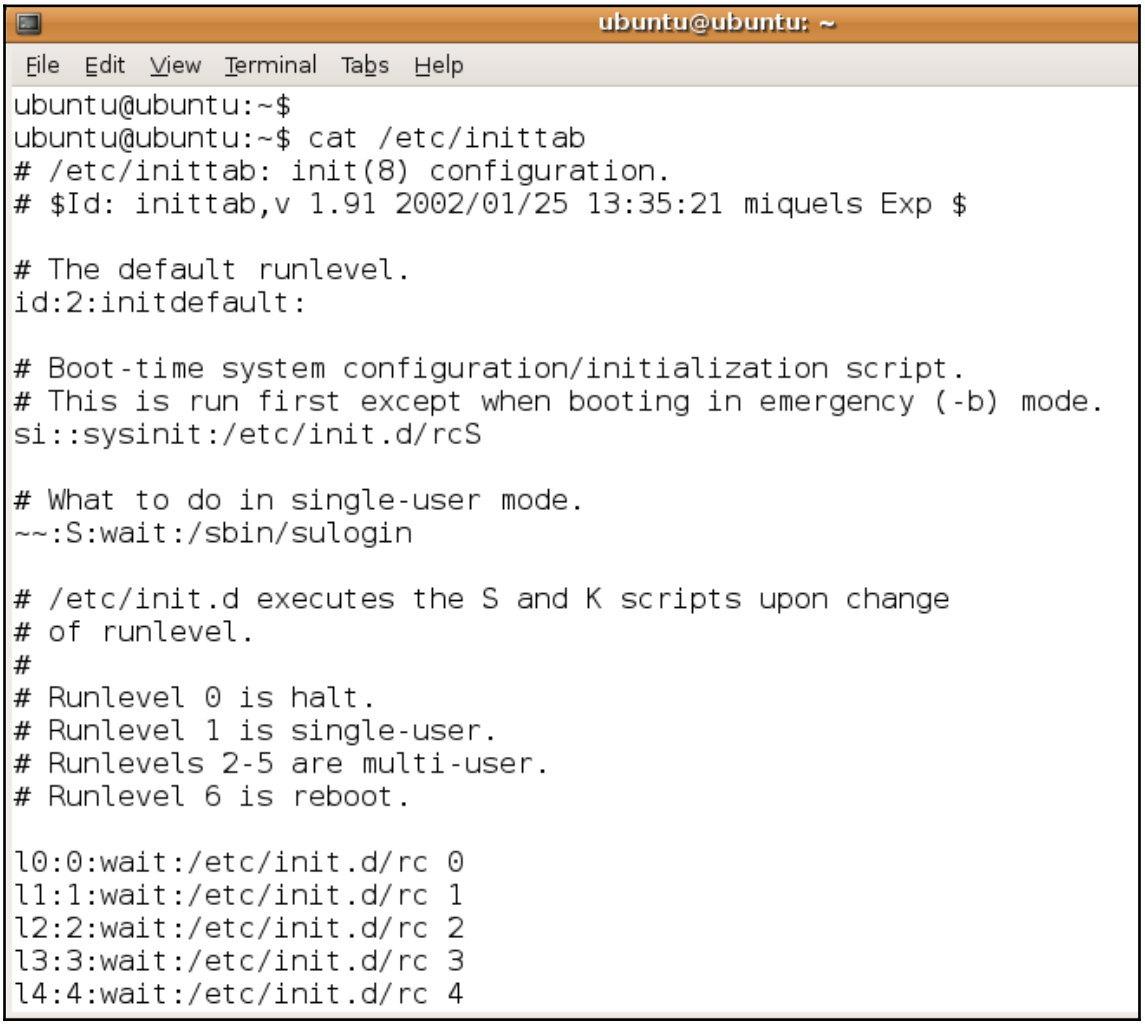

GNU GRUB version 0.97 (635K lower / 1046400K upper memory)
CentOS (2.6.32-431.el6.x86_64)
CompTIA Linux+ (Our.Custom.Entry)
Use the ↑ and ↓ keys to select which entry is highlighted.
Press enter to boot the selected OS, 'e' to edit the
commands before booting, 'a' to modify the kernel arguments
before booting, or 'c' for a command-line.


GNU GRUB version 0.97 (635K lower / 1046400K upper memory)
root (hd0,0)
kernel /vmlinuz-2.6.32-431.el6.x86 ro
initrd /initramfs-2.6.32-431.el6.x86_64.img
Use the ↑ and ↓ keys to select which entry is highlighted.
Press 'b' to boot, 'e' to edit the selected command in the
boot sequence, 'c' for a command-line, 'o' to open a new line
after ('O' for before) the selected line, 'd' to remove the
selected line, or escape to go back to the main menu.

```
[ Minimal BASH-like line editing is supported.  For the first word, TAB
  lists possible command completions.  Anywhere else TAB lists the possible
  completions of a device/filename.  ESC at any time cancels.  ENTER
  at any time accepts your changes.]

grub edit> kernel /vmlinuz-2.6.32-431.el6.x86 ro root=/dev/OUR_Entry
```

```
  GNU GRUB  version 0.97  (635K lower / 1046400K upper memory)

 root (hd0,0)
 kernel /vmlinuz-2.6.32-431.el6.x86 ro root=/dev/Our_Entry
 initrd /initramfs-2.6.32-431.el6.x86_64.img

    Use the ↑ and ↓ keys to select which entry is highlighted.
    Press 'b' to boot, 'e' to edit the selected command in the
    boot sequence, 'c' for a command-line, 'o' to open a new line
    after ('O' for before) the selected line, 'd' to remove the
    selected line, or escape to go back to the main menu.
```

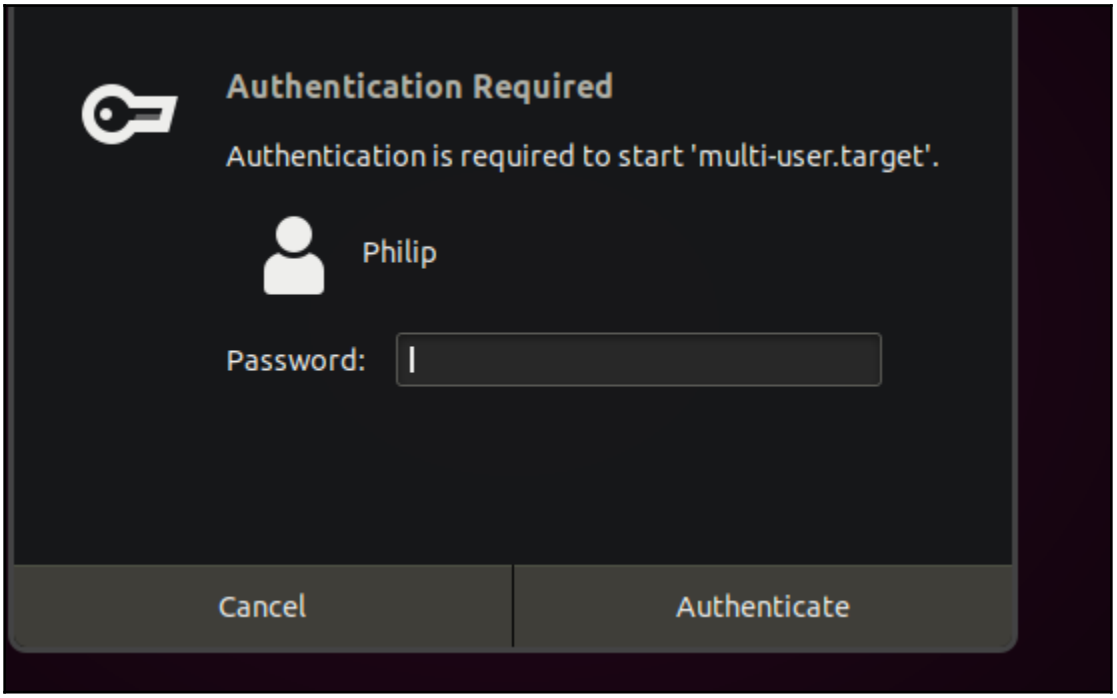
Chapter 3: Changing Runlevels and Boot Targets



```
root@ubuntu:/home/philip#
root@ubuntu:/home/philip# systemctl list-dependencies graphical.target
graphical.target
● ├─accounts-daemon.service
● ├─apport.service
● ├─grub-common.service
● ├─irqbalance.service
● ├─lightdm.service
● ├─ondemand.service
● ├─speech-dispatcher.service
● ├─systemd-update-utmp-runlevel.service
● ├─ureadahead.service
● └─multi-user.target
●   ├─anacron.service
●   ├─apport.service
●   ├─avahi-daemon.service
●   ├─cron.service
●   ├─cups-browsed.service
●   ├─cups.path
●   ├─dbus.service
●   ├─dns-clean.service
●   ├─grub-common.service
●   ├─irqbalance.service
●   ├─ModemManager.service
●   ├─networking.service
●   ├─NetworkManager.service
●   ├─ondemand.service
●   ├─open-vm-tools.service
●   ├─plymouth-quit-wait.service
●   ├─plymouth-quit.service
```

```
Telling INIT to go to single user mode.
init: rc main process (2501) killed by TERM signal
[root@localhost /]# runlevel
1 S
[root@localhost /]# who -r
         run-level S  2018-06-20 08:15                   last=1
[root@localhost /]#
```

```
Telling INIT to go to single user mode.
init: rc main process (2501) killed by TERM signal
[root@localhost /]# runlevel
1 S
[root@localhost /]# who -r
         run-level S  2018-06-20 08:15                   last=1
[root@localhost /]# init 5
```



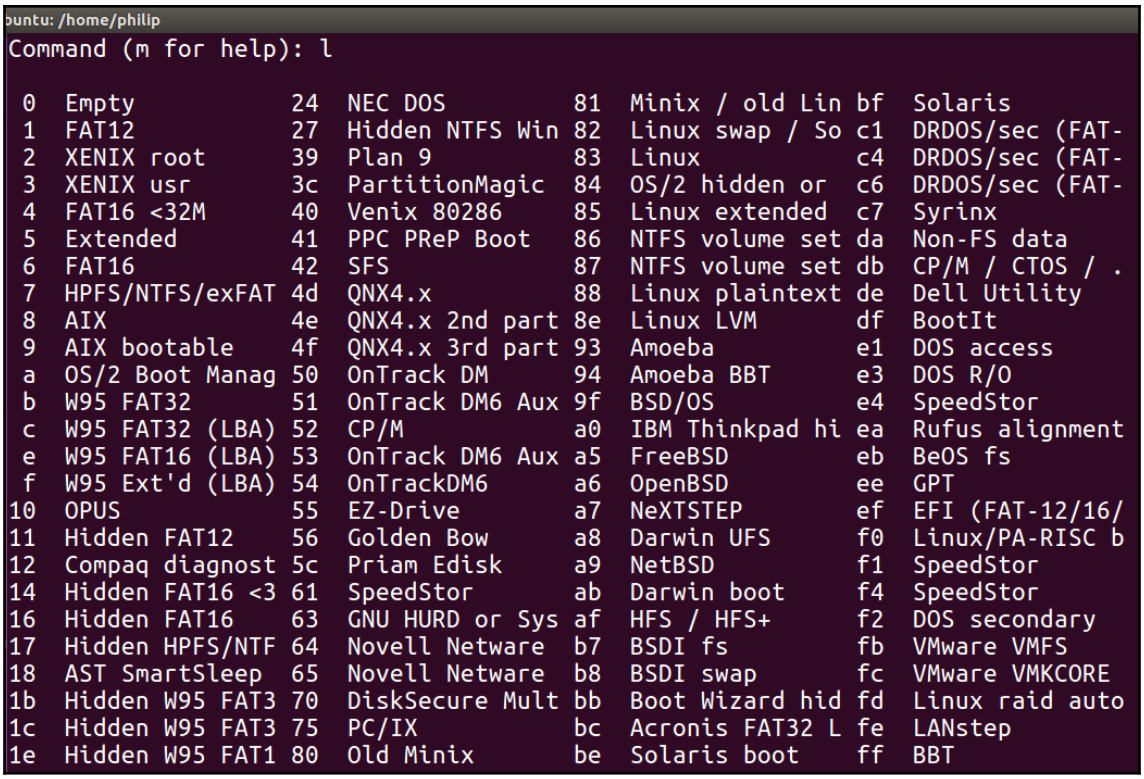
```
philip@trainer-vm:~$
philip@trainer-vm:~$
philip@trainer-vm:~$
philip@trainer-vm:~$
philip@trainer-vm:~$
philip@trainer-vm:~$
philip@trainer-vm:~$
philip@trainer-vm:~$ systemctl status multi-user.target
● multi-user.target - Multi-User System
   Loaded: loaded (/lib/systemd/system/multi-user.target; static; vendor preset: enabled)
   Active: active since Thu 2018-06-14 11:21:49 -04; 1h 59min ago
     Docs: man:systemd.special(7)

Jun 14 11:21:49 trainer-vm systemd[1]: Reached target Multi-User System.
philip@trainer-vm:~$ _
```

```
philip@ubuntu:~$ systemctl isolate graphical.target
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ===
Authentication is required to start 'graphical.target'.
Authenticating as: philip,,, (philip)
Password: _
```

Chapter 4: Designing a Hard Disk Layout

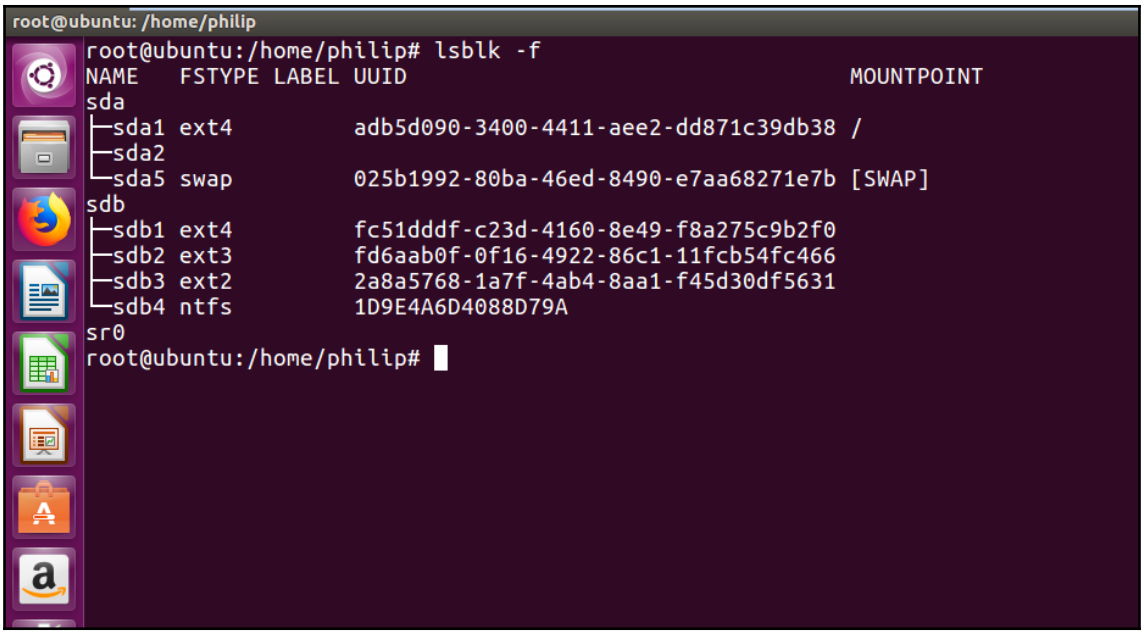
```
buntu: /home/philip
Command (m for help): l

 0  Empty           24  NEC DOS         81  Minix / old Lin bf  Solaris
 1  FAT12           27  Hidden NTFS Win 82  Linux swap / So c1  DRDOS/sec (FAT-
 2  XENIX root      39  Plan 9          83  Linux           c4  DRDOS/sec (FAT-
 3  XENIX usr       3c  PartitionMagic  84  OS/2 hidden or  c6  DRDOS/sec (FAT-
 4  FAT16 <32M      40  Venix 80286     85  Linux extended  c7  Syrinx
 5  Extended        41  PPC PReP Boot   86  NTFS volume set da  Non-FS data
 6  FAT16           42  SFS             87  NTFS volume set db  CP/M / CTOS / .
 7  HPFS/NTFS/exFAT 4d  QNX4.x          88  Linux plaintext de  Dell Utility
 8  AIX             4e  QNX4.x 2nd part 8e  Linux LVM       df  BootIt
 9  AIX bootable    4f  QNX4.x 3rd part 93  Amoeba          e1  DOS access
 a  OS/2 Boot Manag 50  OnTrack DM      94  Amoeba BBT      e3  DOS R/O
 b  W95 FAT32       51  OnTrack DM6 Aux 9f  BSD/OS          e4  SpeedStor
 c  W95 FAT32 (LBA) 52  CP/M            a0  IBM Thinkpad hi ea  Rufus alignment
 e  W95 FAT16 (LBA) 53  OnTrack DM6 Aux a5  FreeBSD         eb  BeOS fs
 f  W95 Ext'd (LBA) 54  OnTrackDM6      a6  OpenBSD         ee  GPT
10  OPUS            55  EZ-Drive        a7  NeXTSTEP        ef  EFI (FAT-12/16/
11  Hidden FAT12    56  Golden Bow      a8  Darwin UFS      f0  Linux/PA-RISC b
12  Compaq diagnost 5c  Priam Edisk     a9  NetBSD          f1  SpeedStor
14  Hidden FAT16 <3 61  SpeedStor       ab  Darwin boot     f4  SpeedStor
16  Hidden FAT16    63  GNU HURD or Sys af  HFS / HFS+      f2  DOS secondary
17  Hidden HPFS/NTF 64  Novell Netware  b7  BSDI fs         fb  VMware VMFS
18  AST SmartSleep  65  Novell Netware  b8  BSDI swap       fc  VMware VMKCORE
1b  Hidden W95 FAT3 70  DiskSecure Mult bb  Boot Wizard hid fd  Linux raid auto
1c  Hidden W95 FAT3 75  PC/IX           bc  Acronis FAT32 L fe  LANstep
1e  Hidden W95 FAT1 80  Old Minix       be  Solaris boot    ff  BBT
```

```
Command (m for help): p
Disk /dev/sda: 20 GiB, 21474836480 bytes, 41943040 sectors
Geometry: 255 heads, 63 sectors/track, 2610 cylinders
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xf54f42a0

Device     Boot    Start      End  Sectors  Size Id Type
/dev/sda1  *        2048 39845887 39843840   19G 83 Linux
/dev/sda2       39847934 41940991  2093058 1022M  5 Extended
/dev/sda5       39847936 41940991  2093056 1022M 82 Linux swap / Solaris

Command (m for help):
```

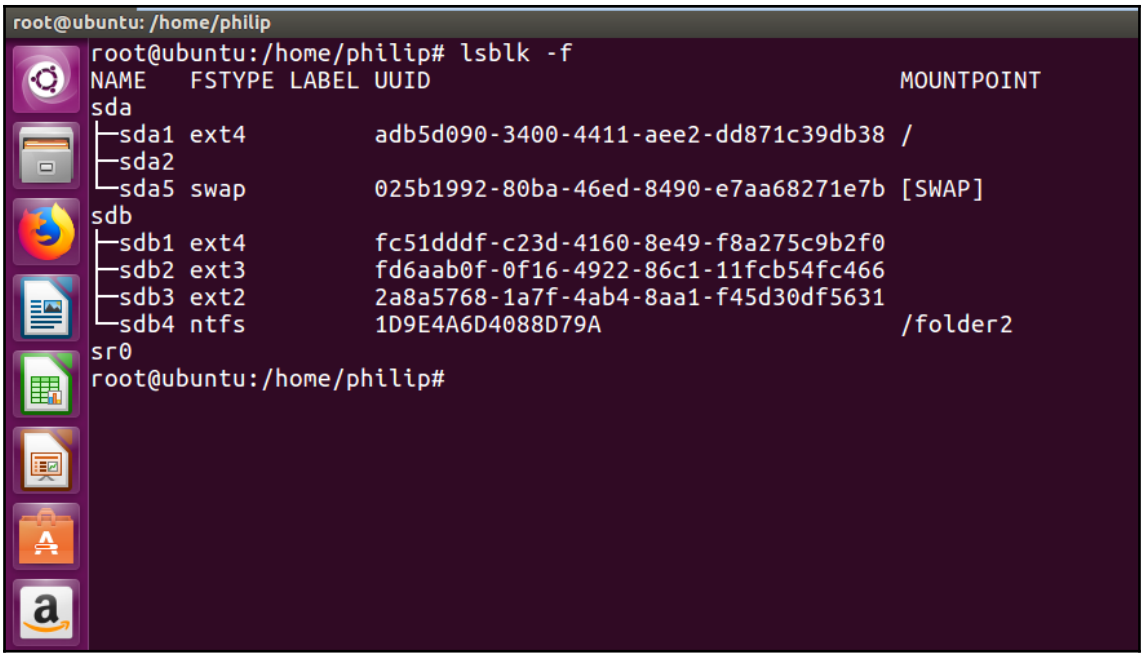

buntu: /home/philip
Command (m for help): l
0 Empty 24 NEC DOS 81 Minix / old Lin bf Solaris
1 FAT12 27 Hidden NTFS Win 82 Linux swap / So c1 DRDOS/sec (FAT-
2 XENIX root 39 Plan 9 83 Linux c4 DRDOS/sec (FAT-
3 XENIX usr 3c PartitionMagic 84 OS/2 hidden or c6 DRDOS/sec (FAT-
4 FAT16 <32M 40 Venix 80286 85 Linux extended c7 Syrinx
5 Extended 41 PPC PReP Boot 86 NTFS volume set da Non-FS data
6 FAT16 42 SFS 87 NTFS volume set db CP/M / CTOS / .
7 HPFS/NTFS/exFAT 4d QNX4.x 88 Linux plaintext de Dell Utility
8 AIX 4e QNX4.x 2nd part 8e Linux LVM df BootIt
9 AIX bootable 4f QNX4.x 3rd part 93 Amoeba e1 DOS access
a OS/2 Boot Manag 50 OnTrack DM 94 Amoeba BBT e3 DOS R/O
b W95 FAT32 51 OnTrack DM6 Aux 9f BSD/OS e4 SpeedStor
c W95 FAT32 (LBA) 52 CP/M a0 IBM Thinkpad hi ea Rufus alignment
e W95 FAT16 (LBA) 53 OnTrack DM6 Aux a5 FreeBSD eb BeOS fs
f W95 Ext'd (LBA) 54 OnTrackDM6 a6 OpenBSD ee GPT
10 OPUS 55 EZ-Drive a7 NeXTSTEP ef EFI (FAT-12/16/
11 Hidden FAT12 56 Golden Bow a8 Darwin UFS f0 Linux/PA-RISC b
12 Compaq diagnost 5c Priam Edisk a9 NetBSD f1 SpeedStor
14 Hidden FAT16 <3 61 SpeedStor ab Darwin boot f4 SpeedStor
16 Hidden FAT16 63 GNU HURD or Sys af HFS / HFS+ f2 DOS secondary
17 Hidden HPFS/NTF 64 Novell Netware b7 BSDI fs fb VMware VMFS
18 AST SmartSleep 65 Novell Netware b8 BSDI swap fc VMware VMKCORE
1b Hidden W95 FAT3 70 DiskSecure Mult bb Boot Wizard hid fd Linux raid auto
1c Hidden W95 FAT3 75 PC/IX bc Acronis FAT32 L fe LANstep
1e Hidden W95 FAT1 80 Old Minix be Solaris boot ff BBT

```
Device     Boot    Start      End  Sectors Size Id Type
/dev/sdb1           2048 10487807 10485760   5G 83 Linux
/dev/sdb2       10487808 18876415  8388608   4G  7 HPFS/NTFS/exFAT
/dev/sdb3       18876416 31457279 12580864   6G ef EFI (FAT-12/16/32)

Command (m for help): a
Partition number (1-3, default 3): 3

The bootable flag on partition 3 is enabled now.

Command (m for help): p
Disk /dev/sdb: 15 GiB, 16106127360 bytes, 31457280 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x2584b986

Device     Boot    Start      End  Sectors Size Id Type
/dev/sdb1           2048 10487807 10485760   5G 83 Linux
/dev/sdb2       10487808 18876415  8388608   4G  7 HPFS/NTFS/exFAT
/dev/sdb3  *    18876416 31457279 12580864   6G ef EFI (FAT-12/16/32)

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

root@ubuntu:/home/philip#
```

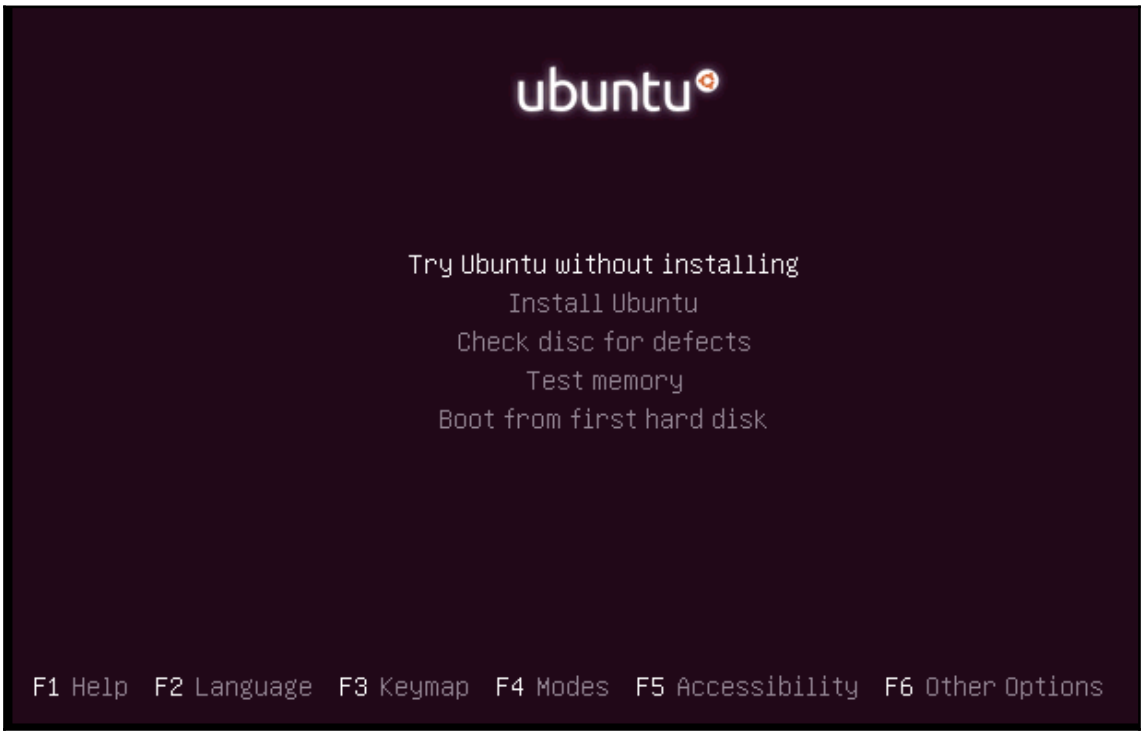
```
root@ubuntu:/home/philip# mkfs
mkfs          mkfs.cramfs   mkfs.ext3     mkfs.ext4dev  mkfs.minix    mkfs.ntfs
mkfs.bfs      mkfs.ext2     mkfs.ext4     mkfs.fat      mkfs.msdos    mkfs.vfat
root@ubuntu:/home/philip# mkfs
```

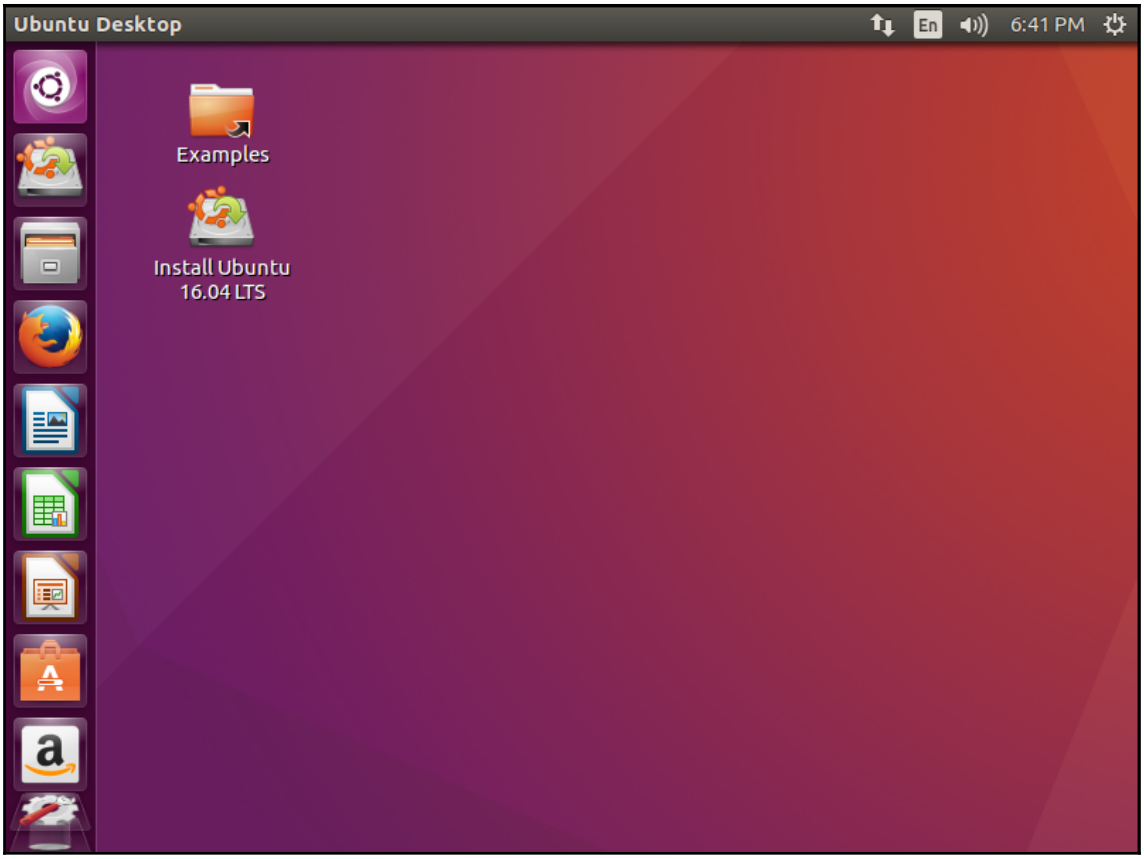


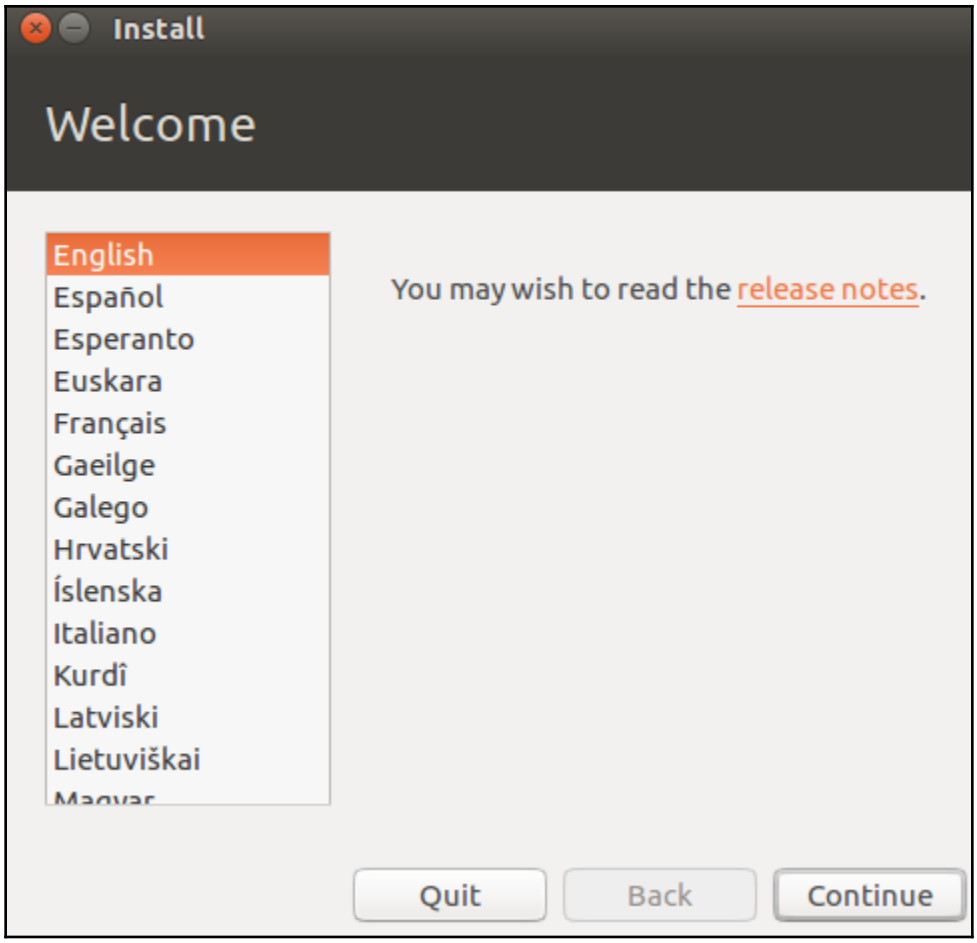

```
root@ubuntu:/home/philip# blkid
/dev/sda1: UUID="adb5d090-3400-4411-aee2-dd871c39db38" TYPE="ext4" PARTUUID="f54f42a0-01"
/dev/sda5: UUID="025b1992-80ba-46ed-8490-e7aa68271e7b" TYPE="swap" PARTUUID="f54f42a0-05"
/dev/sdb1: PARTUUID="7e707ac0-01"
/dev/sdb2: PARTUUID="7e707ac0-02"
/dev/sdb3: PARTUUID="7e707ac0-03"
/dev/sdb4: PARTUUID="7e707ac0-04"
root@ubuntu:/home/philip#
```

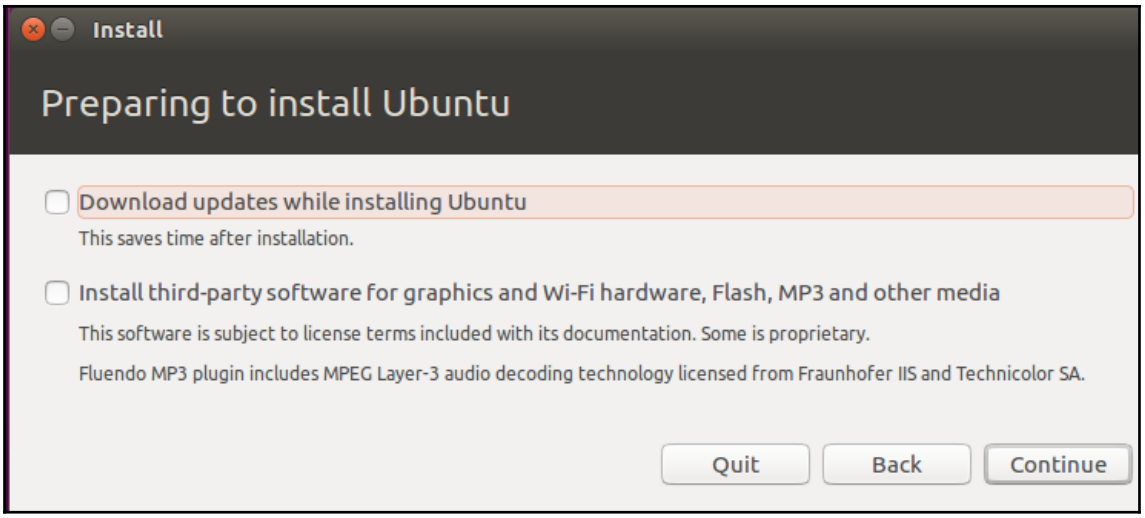

root@ubuntu: /home/philip
root@ubuntu:/home/philip# lsblk -f
NAME   FSTYPE LABEL UUID   MOUNTPOINT
sda
├─sda1 ext4   adb5d090-3400-4411-aee2-dd871c39db38 /
├─sda2
└─sda5 swap   025b1992-80ba-46ed-8490-e7aa68271e7b [SWAP]
sdb
├─sdb1 ext4   fc51dddf-c23d-4160-8e49-f8a275c9b2f0
├─sdb2 ext3   fd6aab0f-0f16-4922-86c1-11fcb54fc466
├─sdb3 ext2   2a8a5768-1a7f-4ab4-8aa1-f45d30df5631
└─sdb4 ntfs   1D9E4A6D4088D79A   /folder2
sr0
root@ubuntu:/home/philip#

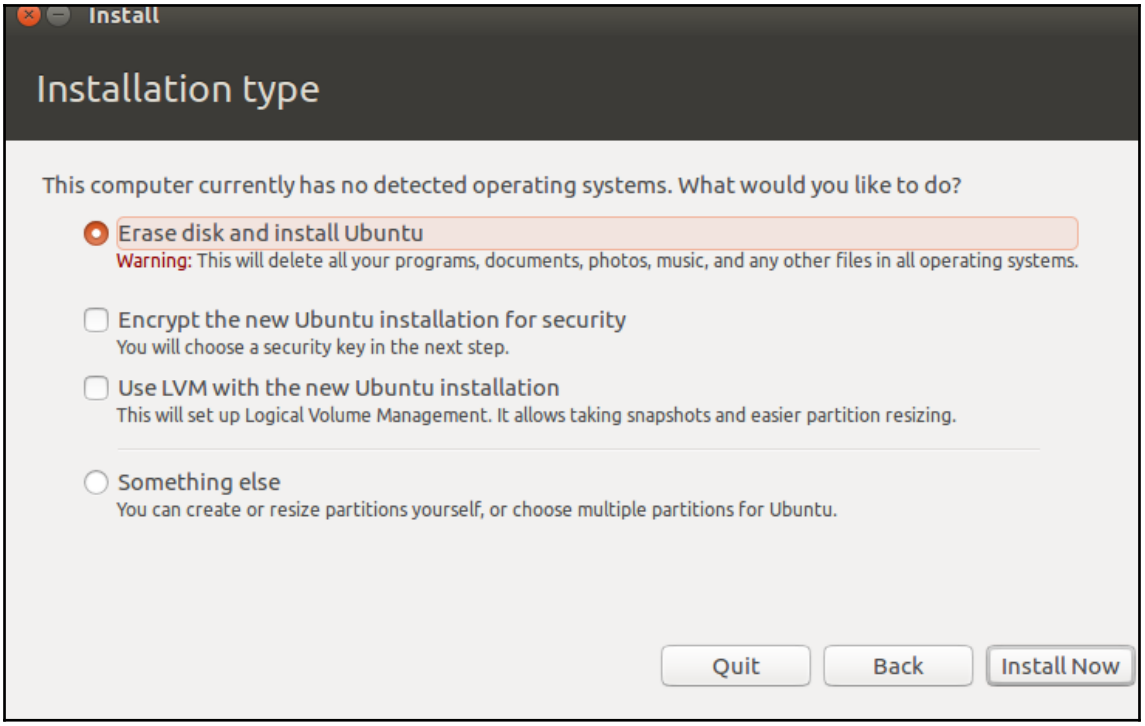
Chapter 5: Installing a Linux Distribution

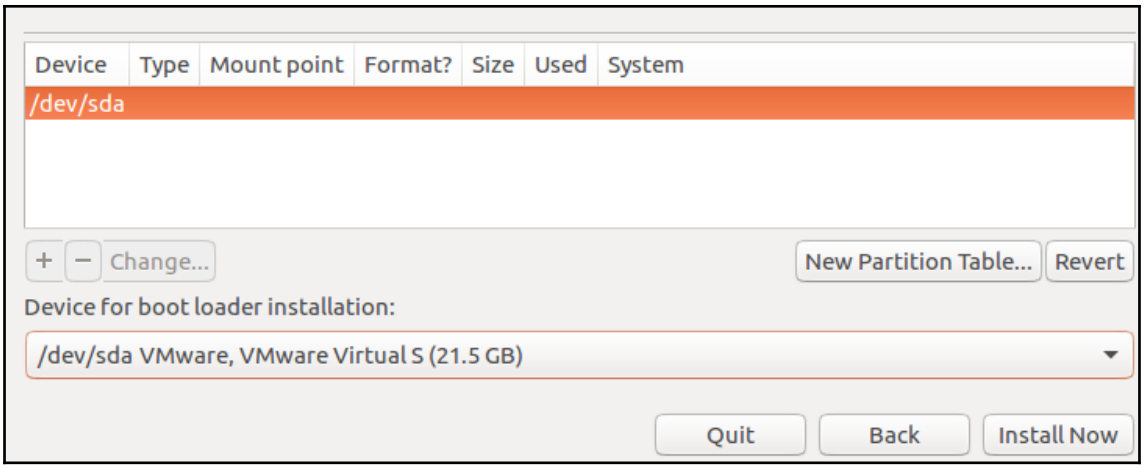


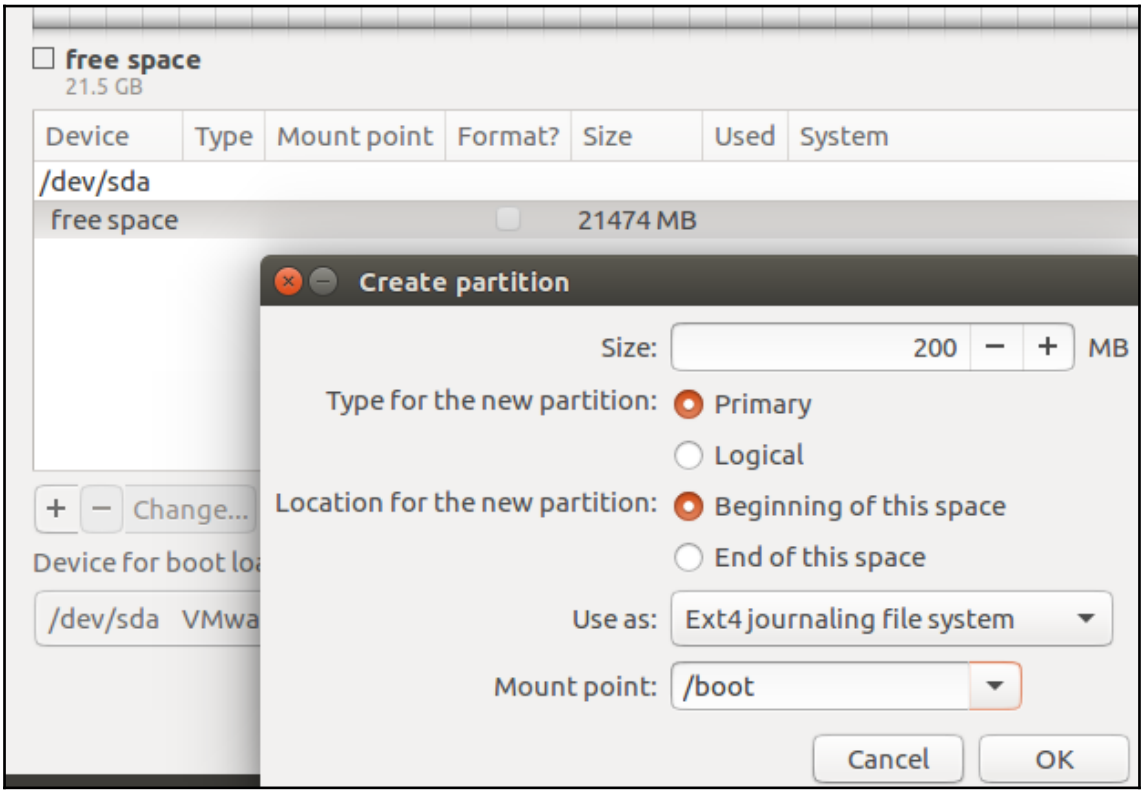

Ubuntu Desktop
En
6:41 PM
Examples
Install Ubuntu
16.04 LTS

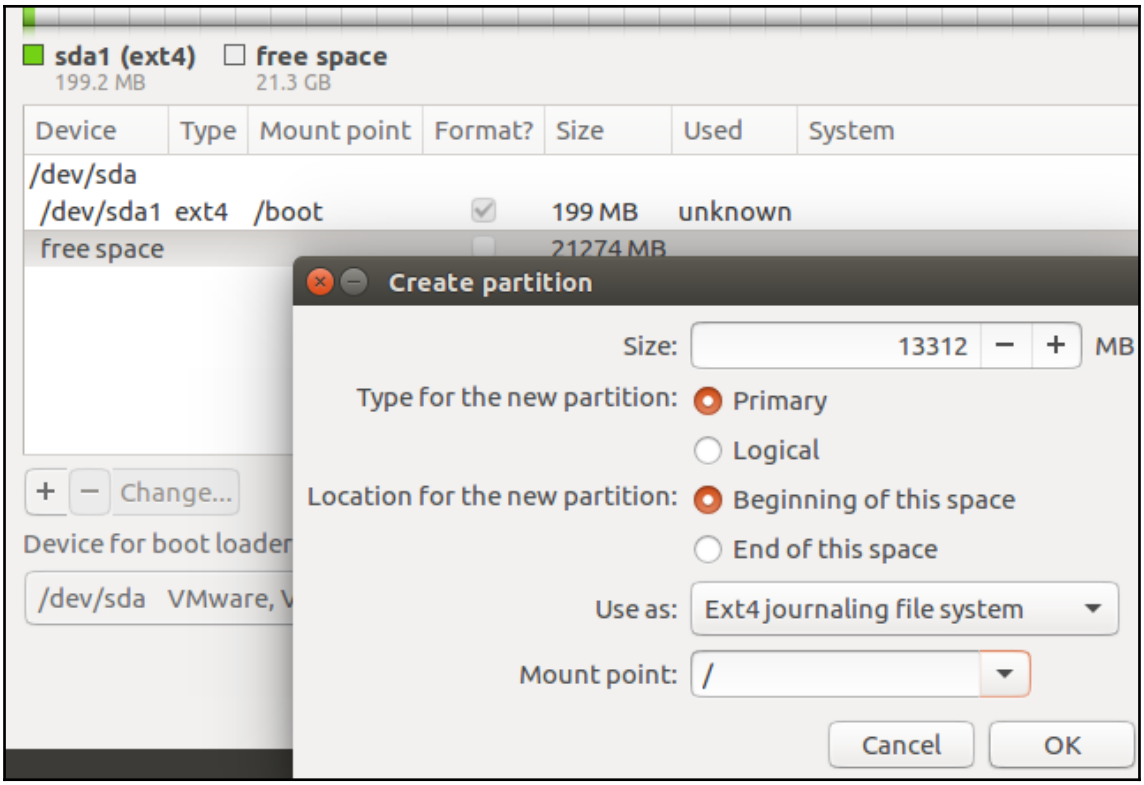

Install
Welcome
English
Español
Esperanto
Euskara
Français
Gaeilge
Galego
Hrvatski
Íslenska
Italiano
Kurdî
Latviski
Lietuviškai
Magyar
You may wish to read the release notes.
Quit
Back
Continue

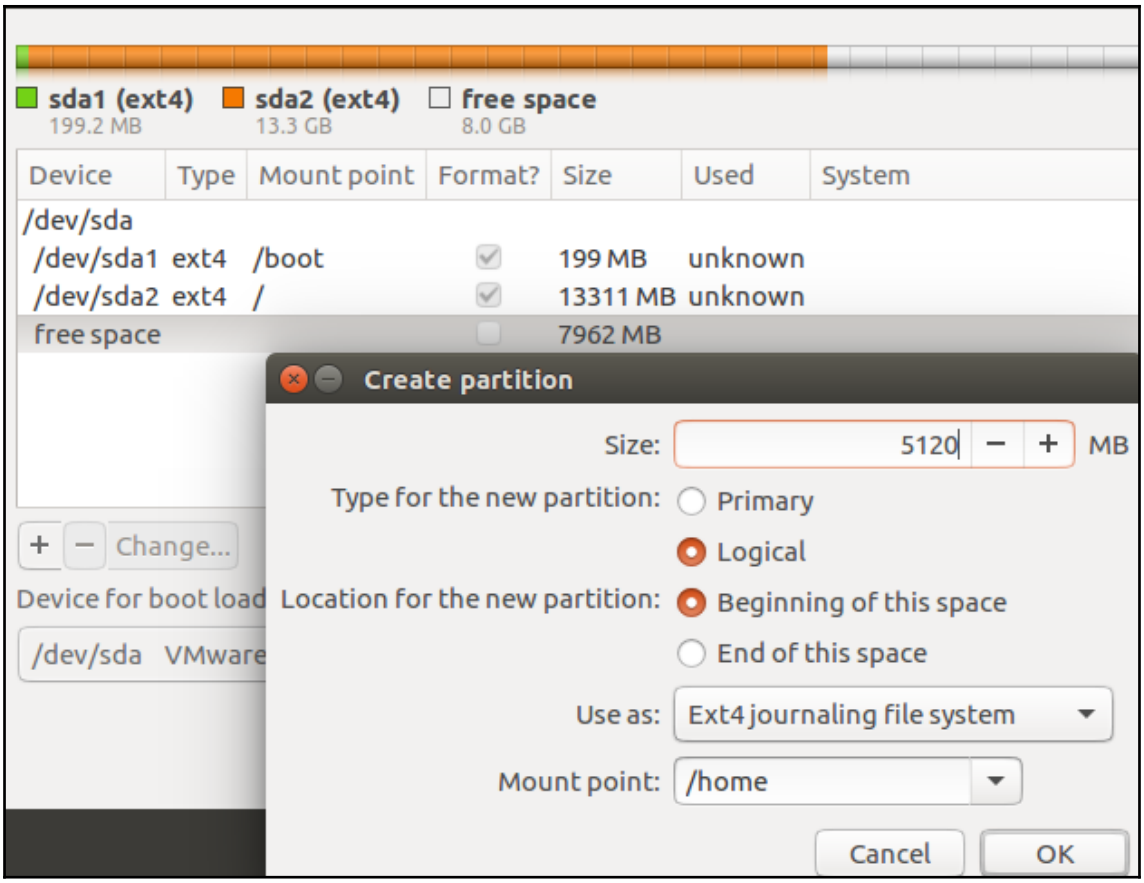

Install
Preparing to install Ubuntu
Download updates while installing Ubuntu
This saves time after installation.
Install third-party software for graphics and Wi-Fi hardware, Flash, MP3 and other media
This software is subject to license terms included with its documentation. Some is proprietary.
Fluendo MP3 plugin includes MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Technicolor SA.
Quit
Back
Continue

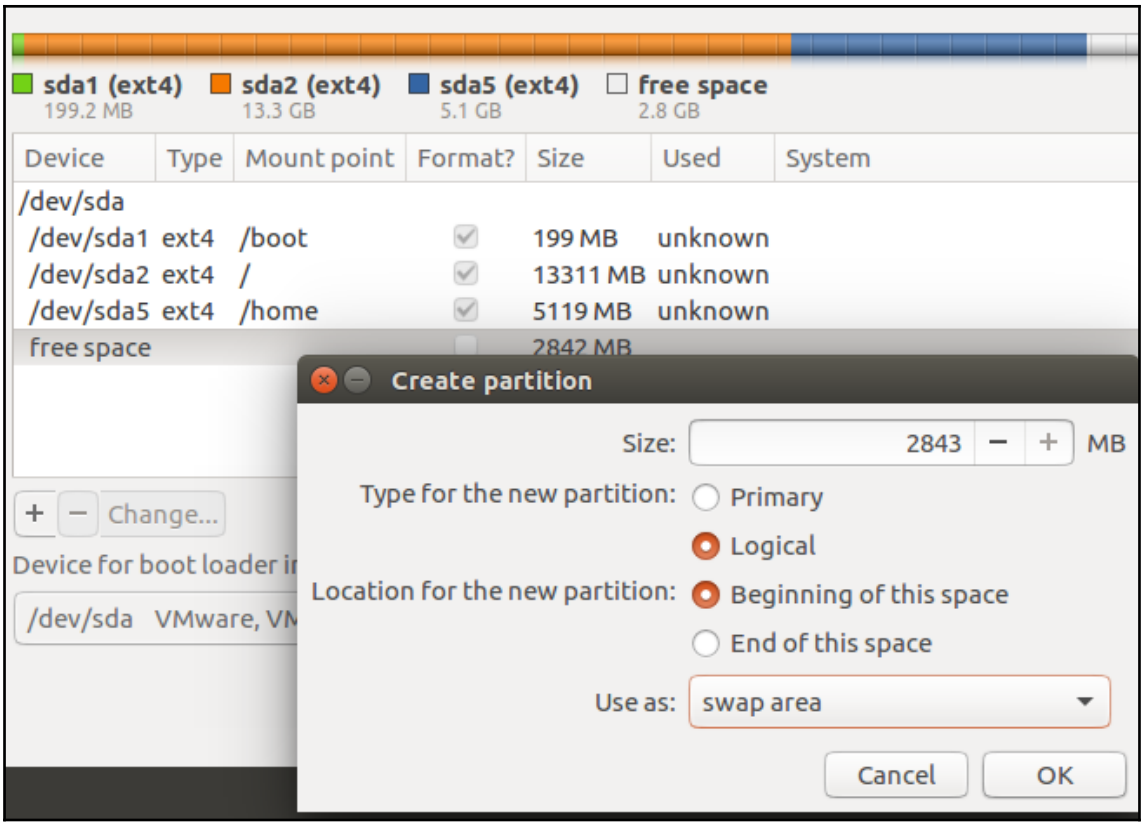

Install
Installation type
This computer currently has no detected operating systems. What would you like to do?
Erase disk and install Ubuntu
Warning: This will delete all your programs, documents, photos, music, and any other files in all operating systems.
Encrypt the new Ubuntu installation for security
You will choose a security key in the next step.
Use LVM with the new Ubuntu installation
This will set up Logical Volume Management. It allows taking snapshots and easier partition resizing.
Something else
You can create or resize partitions yourself, or choose multiple partitions for Ubuntu.
Quit
Back
Install Now

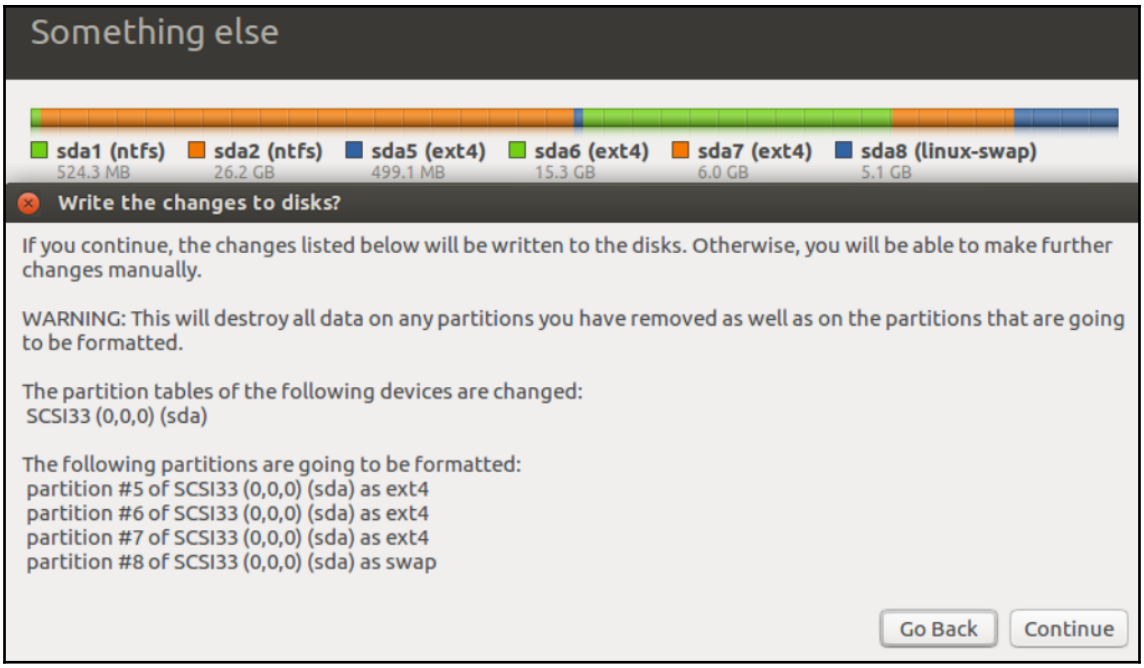

Device
Type
Mount point
Format?
Size
Used
System
/dev/sda
Change...
New Partition Table...
Revert
Device for boot loader installation:
/dev/sda VMware, VMware Virtual S (21.5 GB)
Quit
Back
Install Now

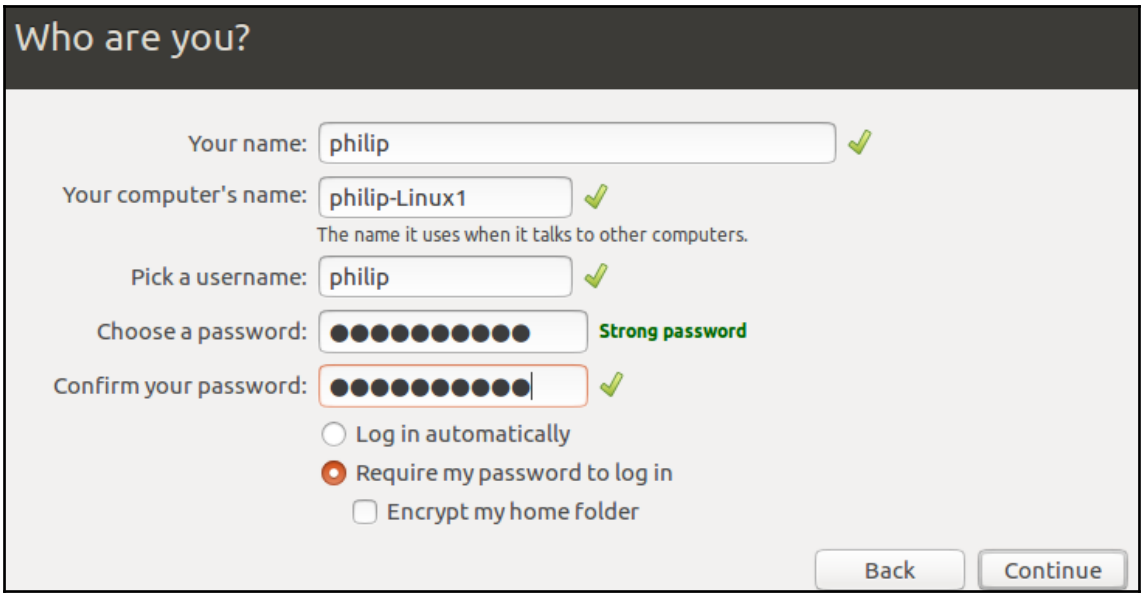

free space
21.5 GB
Device
Type
Mount point
Format?
Size
Used
System
/dev/sda
free space
21474 MB
Change...
Create partition
Size:
200
MB
Type for the new partition:
Primary
Logical
Location for the new partition:
Beginning of this space
End of this space
Use as:
Ext4 journaling file system
Mount point:
/boot
Cancel
OK


sda1 (ext4)
199.2 MB
free space
21.3 GB
Device
Type
Mount point
Format?
Size
Used
System
/dev/sda
/dev/sda1 ext4 /boot
199 MB unknown
free space
21274 MB
Change...
Device for boot loader
/dev/sda VMware, V
Create partition
Size:
13312
MB
Type for the new partition:
Primary
Logical
Location for the new partition:
Beginning of this space
End of this space
Use as:
Ext4 journaling file system
Mount point:
/
Cancel
OK


sda1 (ext4)
199.2 MB
sda2 (ext4)
13.3 GB
free space
8.0 GB
Device
Type
Mount point
Format?
Size
Used
System
/dev/sda
/dev/sda1 ext4 /boot 199 MB unknown
/dev/sda2 ext4 / 13311 MB unknown
free space 7962 MB
Change...
Device for boot load
/dev/sda VMware
Create partition
Size: 5120 MB
Type for the new partition: Primary
Logical
Location for the new partition: Beginning of this space
End of this space
Use as: Ext4 journaling file system
Mount point: /home
Cancel
OK


sda1 (ext4)
199.2 MB
sda2 (ext4)
13.3 GB
sda5 (ext4)
5.1 GB
free space
2.8 GB
Device
Type
Mount point
Format?
Size
Used
System
/dev/sda
/dev/sda1 ext4 /boot 199 MB unknown
/dev/sda2 ext4 / 13311 MB unknown
/dev/sda5 ext4 /home 5119 MB unknown
free space 2842 MB
Change...
Device for boot loader in
/dev/sda VMware, VM
Create partition
Size: 2843 MB
Type for the new partition: Primary
Logical
Location for the new partition: Beginning of this space
End of this space
Use as: swap area
Cancel
OK


Something else
sda1 (ntfs) 524.3 MB
sda2 (ntfs) 26.2 GB
sda5 (ext4) 499.1 MB
sda6 (ext4) 15.3 GB
sda7 (ext4) 6.0 GB
sda8 (linux-swap) 5.1 GB
Write the changes to disks?
If you continue, the changes listed below will be written to the disks. Otherwise, you will be able to make further changes manually.
WARNING: This will destroy all data on any partitions you have removed as well as on the partitions that are going to be formatted.
The partition tables of the following devices are changed:
SCSI33 (0,0,0) (sda)
The following partitions are going to be formatted:
partition #5 of SCSI33 (0,0,0) (sda) as ext4
partition #6 of SCSI33 (0,0,0) (sda) as ext4
partition #7 of SCSI33 (0,0,0) (sda) as ext4
partition #8 of SCSI33 (0,0,0) (sda) as swap
Go Back
Continue


Who are you?
Your name: philip
Your computer's name: philip-Linux1
The name it uses when it talks to other computers.
Pick a username: philip
Choose a password: ●●●●●●●●●●
Strong password
Confirm your password: ●●●●●●●●●●
Log in automatically
Require my password to log in
Encrypt my home folder
Back
Continue

Have fun with your photos

Shotwell is a handy photo manager that is ready for your gadgets. Connect a camera or a phone to transfer your photos, then it's easy to share them and keep them safe. If you're feeling creative, you can try lots of photo apps from the Ubuntu Software Center.

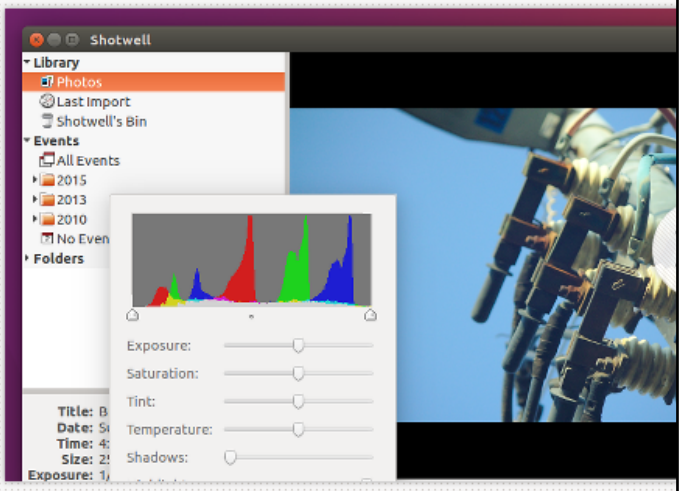
Included software

Shotwell Photo Manager

Supported software

GIMP Image Editor

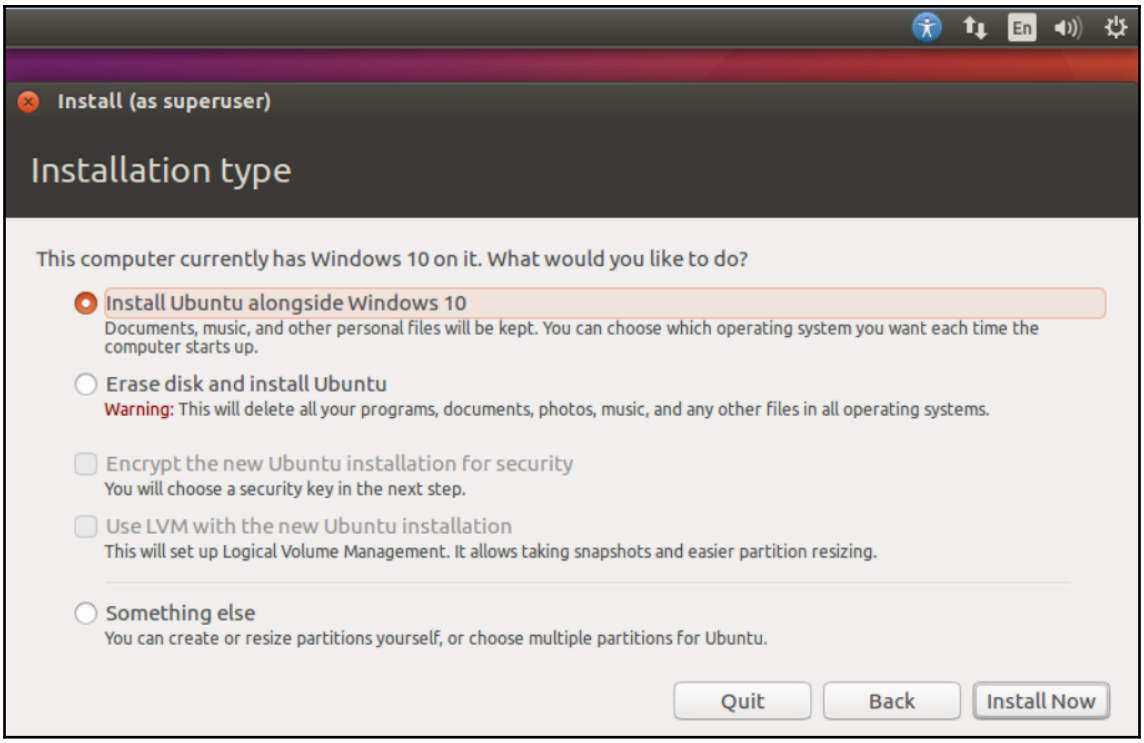
Pitivi Video Editor

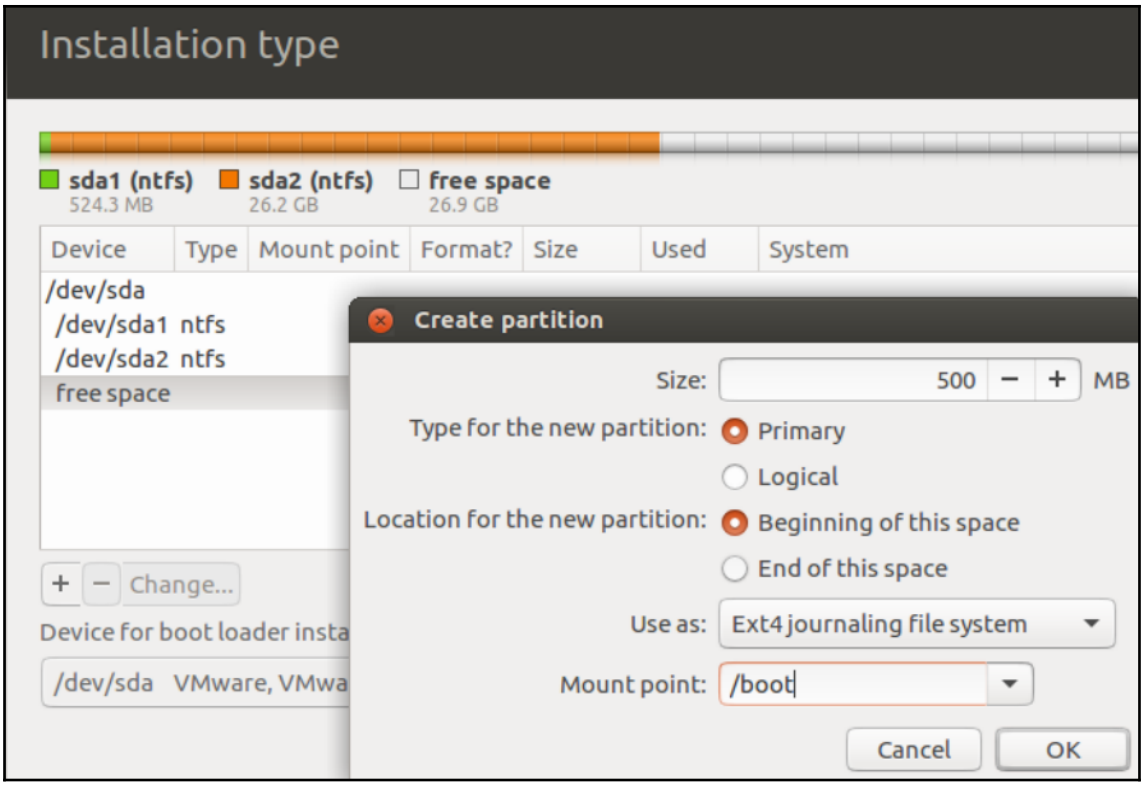


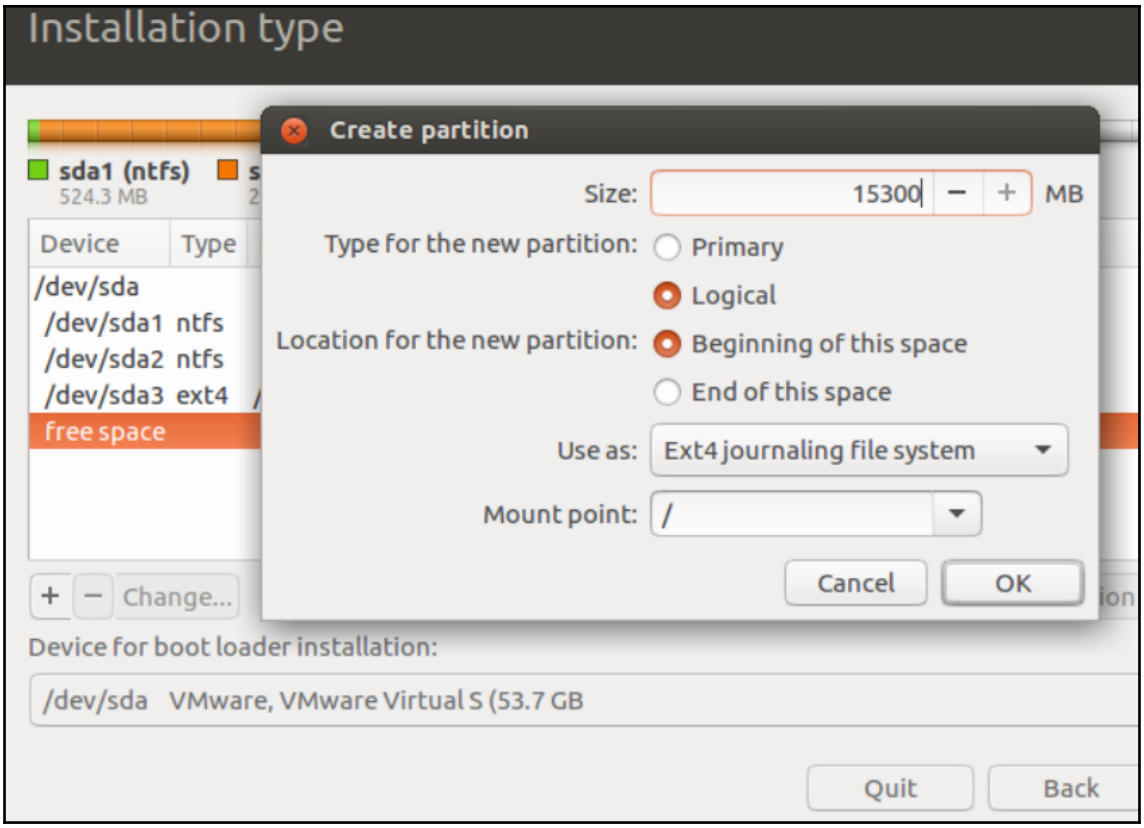
Downloading language packs (1:58 remaining)...

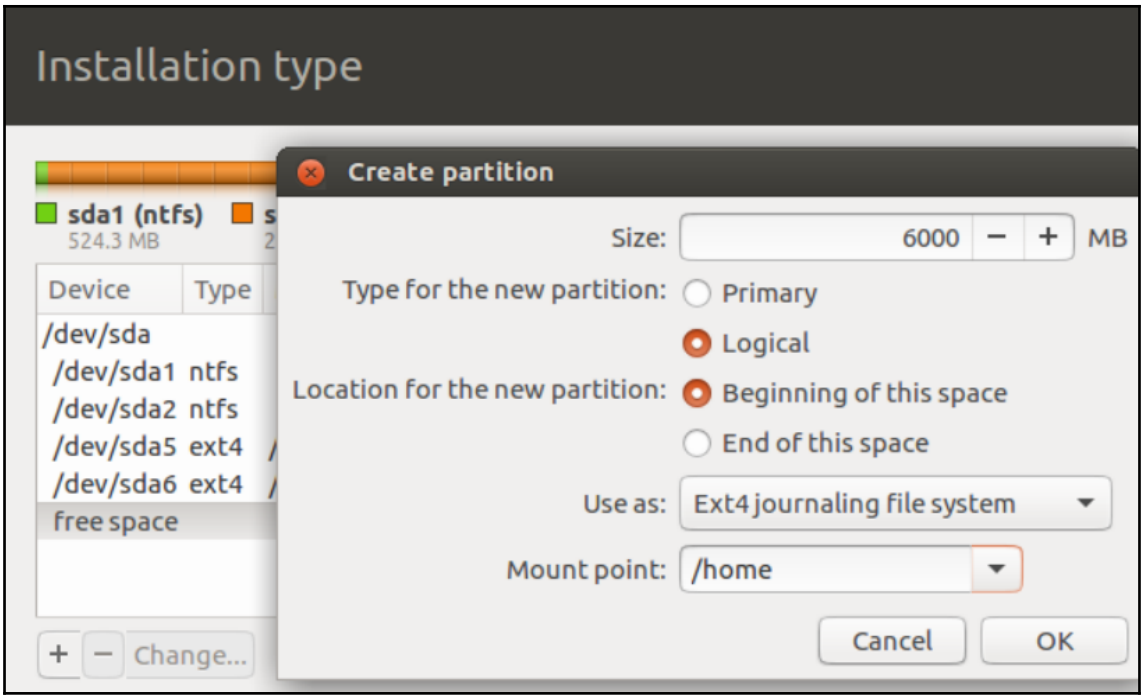
Skip

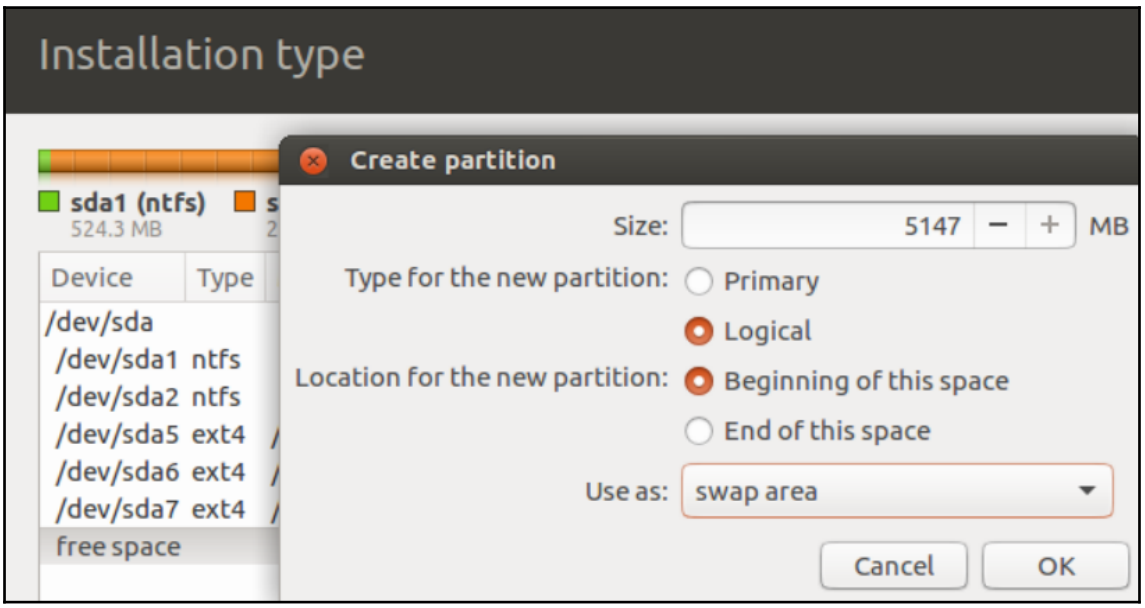
```
Jul  4 20:28:30 ubuntu /plugininstall.py: running /usr/lib/ubiquity/target-config/49kubuntu_gnome_icon_cache
Jul  4 20:28:30 ubuntu /plugininstall.py: running /usr/lib/ubiquity/target-config/50gkd-caps
Jul  4 20:28:31 ubuntu ubiquity: Setting capabilities for gnome-keyring-daemon using Linux Capabilities failed.
Jul  4 20:28:33 ubuntu /plugininstall.py: log-output -t ubiquity chroot /target mount -t proc proc /proc
Jul  4 20:28:33 ubuntu /plugininstall.py: log-output -t ubiquity chroot /target mount -t sysfs sysfs /sys
Jul  4 20:28:33 ubuntu /plugininstall.py: log-output -t ubiquity mount --bind /dev /target/dev
Jul  4 20:28:33 ubuntu /plugininstall.py: log-output -t ubiquity mount --bind /run /target/run
```

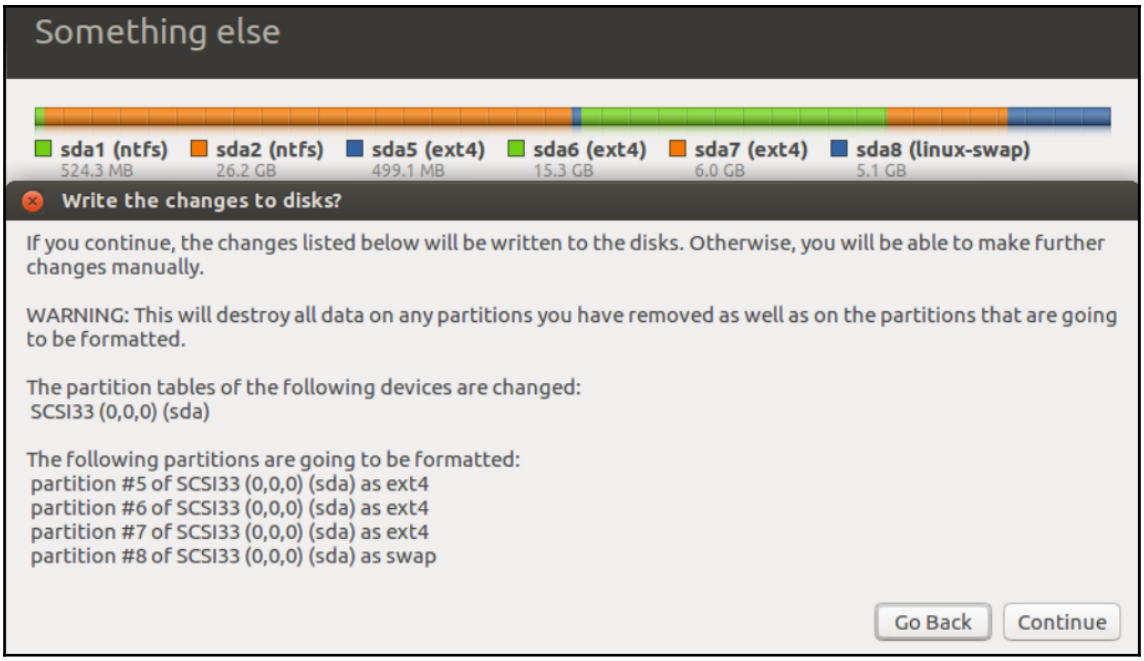

En
Install (as superuser)
Installation type
This computer currently has Windows 10 on it. What would you like to do?
Install Ubuntu alongside Windows 10
Documents, music, and other personal files will be kept. You can choose which operating system you want each time the computer starts up.
Erase disk and install Ubuntu
Warning: This will delete all your programs, documents, photos, music, and any other files in all operating systems.
Encrypt the new Ubuntu installation for security
You will choose a security key in the next step.
Use LVM with the new Ubuntu installation
This will set up Logical Volume Management. It allows taking snapshots and easier partition resizing.
Something else
You can create or resize partitions yourself, or choose multiple partitions for Ubuntu.
Quit
Back
Install Now

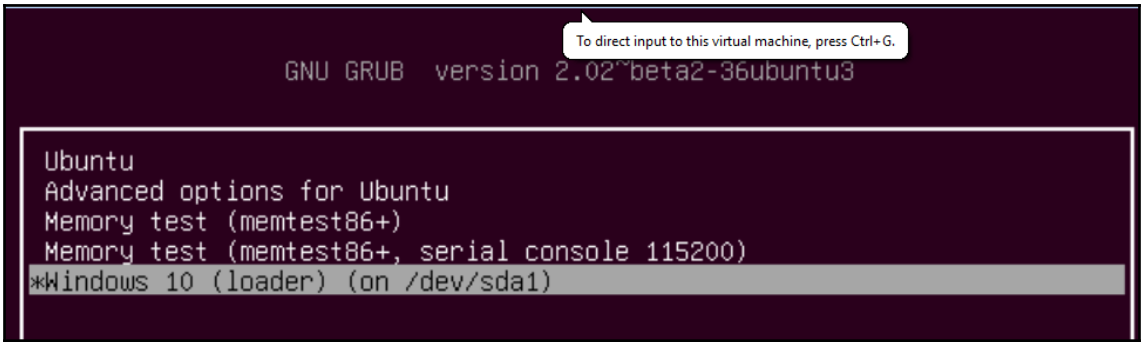

Installation type
sda1 (ntfs)
524.3 MB
sda2 (ntfs)
26.2 GB
free space
26.9 GB
Device
Type
Mount point
Format?
Size
Used
System
/dev/sda
/dev/sda1 ntfs
/dev/sda2 ntfs
free space
Change...
Device for boot loader insta
/dev/sda VMware, VMwa
Create partition
Size:
500
MB
Type for the new partition:
Primary
Logical
Location for the new partition:
Beginning of this space
End of this space
Use as:
Ext4 journaling file system
Mount point:
/boot
Cancel
OK

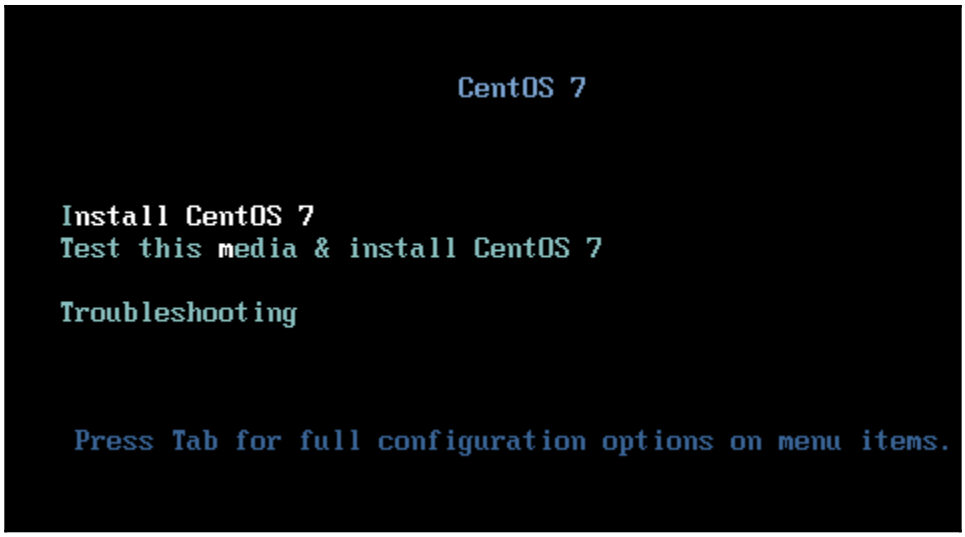

Installation type
sda1 (ntfs)
524.3 MB
Device
Type
/dev/sda
/dev/sda1 ntfs
/dev/sda2 ntfs
/dev/sda3 ext4
free space
Change...
Create partition
Size:
15300
MB
Type for the new partition:
Primary
Logical
Location for the new partition:
Beginning of this space
End of this space
Use as:
Ext4 journaling file system
Mount point:
/
Cancel
OK
Device for boot loader installation:
/dev/sda VMware, VMware Virtual S (53.7 GB
Quit
Back


Installation type
sda1 (ntfs)
524.3 MB
Device
Type
/dev/sda
/dev/sda1 ntfs
/dev/sda2 ntfs
/dev/sda5 ext4
/dev/sda6 ext4
free space
Change...
Create partition
Size:
6000
MB
Type for the new partition:
Primary
Logical
Location for the new partition:
Beginning of this space
End of this space
Use as:
Ext4 journaling file system
Mount point:
/home
Cancel
OK

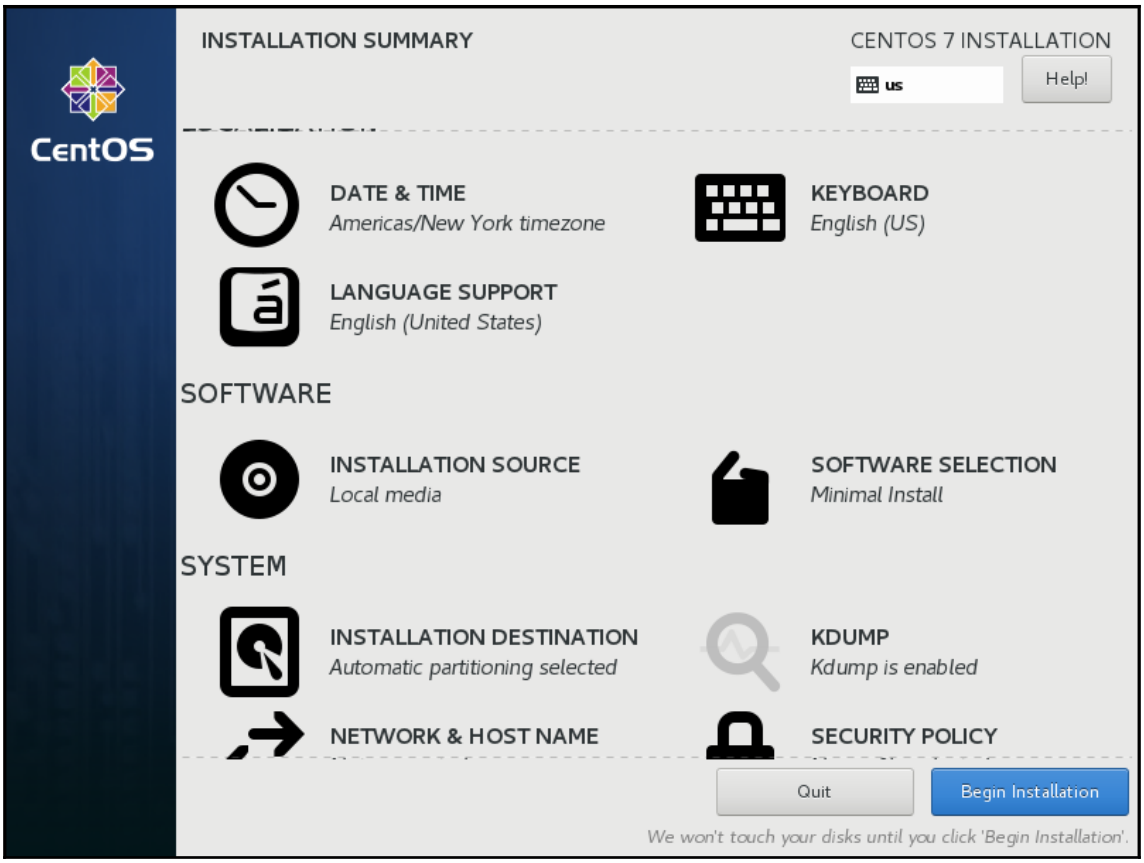

Installation type
sda1 (ntfs)
524.3 MB
Device
Type
/dev/sda
/dev/sda1 ntfs
/dev/sda2 ntfs
/dev/sda5 ext4
/dev/sda6 ext4
/dev/sda7 ext4
free space
Create partition
Size:
5147
MB
Type for the new partition:
Primary
Logical
Location for the new partition:
Beginning of this space
End of this space
Use as:
swap area
Cancel
OK

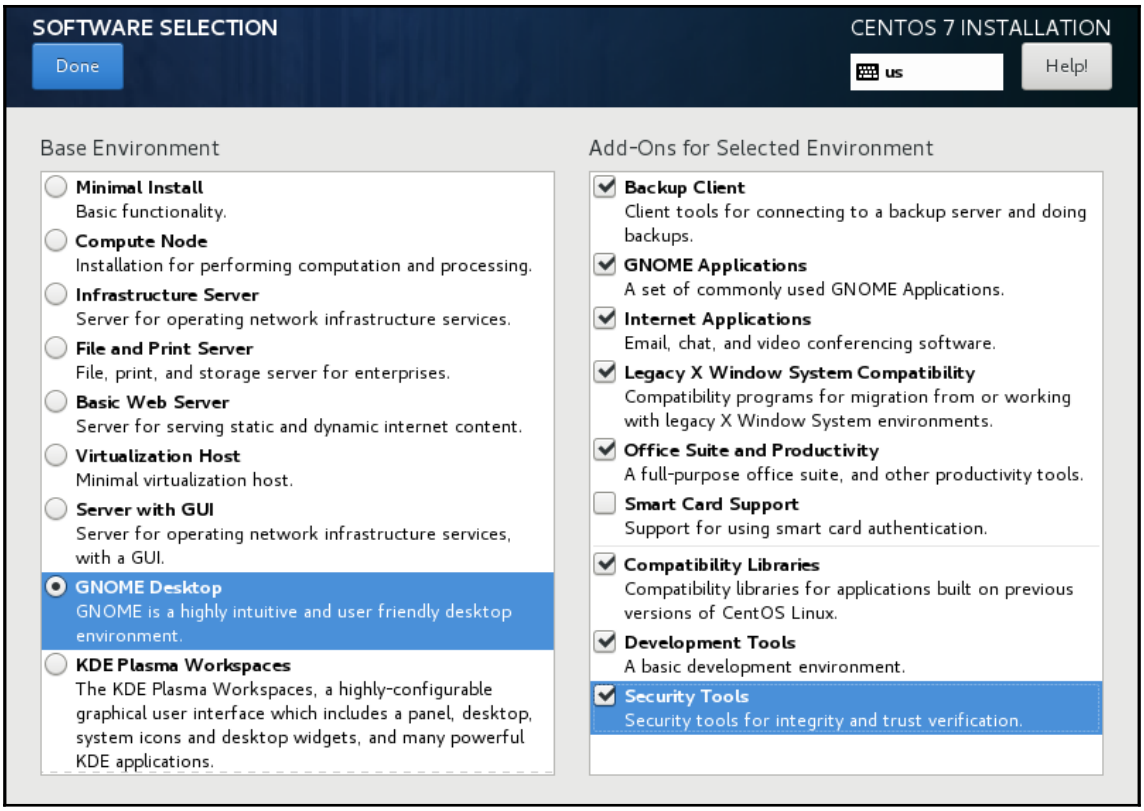

Something else
sda1 (ntfs) 524.3 MB
sda2 (ntfs) 26.2 GB
sda5 (ext4) 499.1 MB
sda6 (ext4) 15.3 GB
sda7 (ext4) 6.0 GB
sda8 (linux-swap) 5.1 GB
Write the changes to disks?
If you continue, the changes listed below will be written to the disks. Otherwise, you will be able to make further changes manually.
WARNING: This will destroy all data on any partitions you have removed as well as on the partitions that are going to be formatted.
The partition tables of the following devices are changed:
SCSI33 (0,0,0) (sda)
The following partitions are going to be formatted:
partition #5 of SCSI33 (0,0,0) (sda) as ext4
partition #6 of SCSI33 (0,0,0) (sda) as ext4
partition #7 of SCSI33 (0,0,0) (sda) as ext4
partition #8 of SCSI33 (0,0,0) (sda) as swap
Go Back
Continue

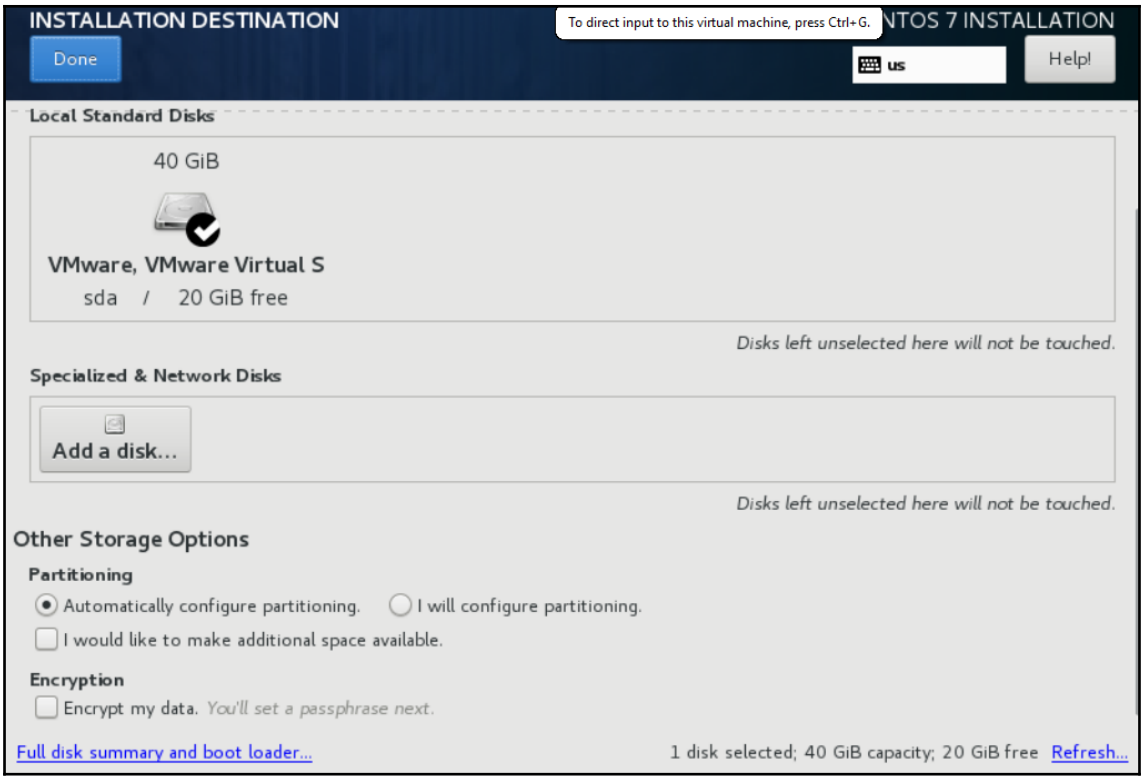

To direct input to this virtual machine, press Ctrl+G.
GNU GRUB version 2.02~beta2-36ubuntu3
Ubuntu
Advanced options for Ubuntu
Memory test (memtest86+)
Memory test (memtest86+, serial console 115200)
*Windows 10 (loader) (on /dev/sda1)

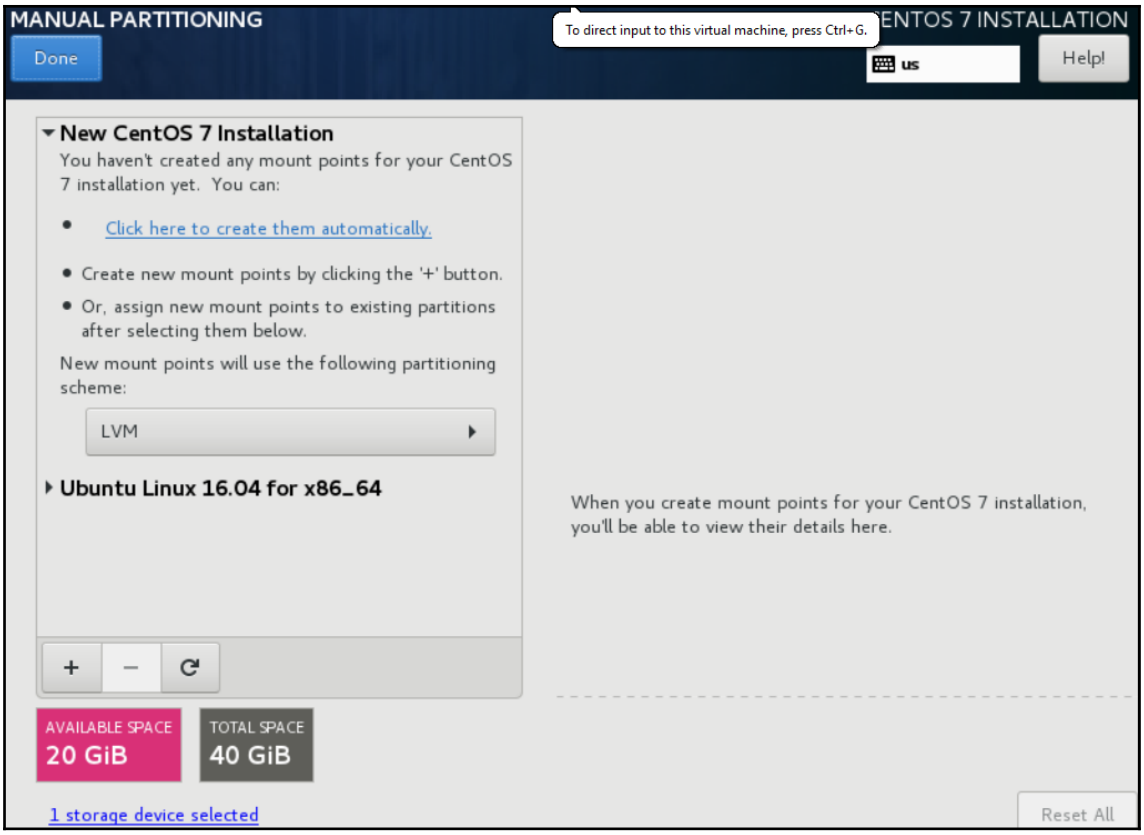

CentOS 7
Install CentOS 7
Test this media & install CentOS 7
Troubleshooting
Press Tab for full configuration options on menu items.

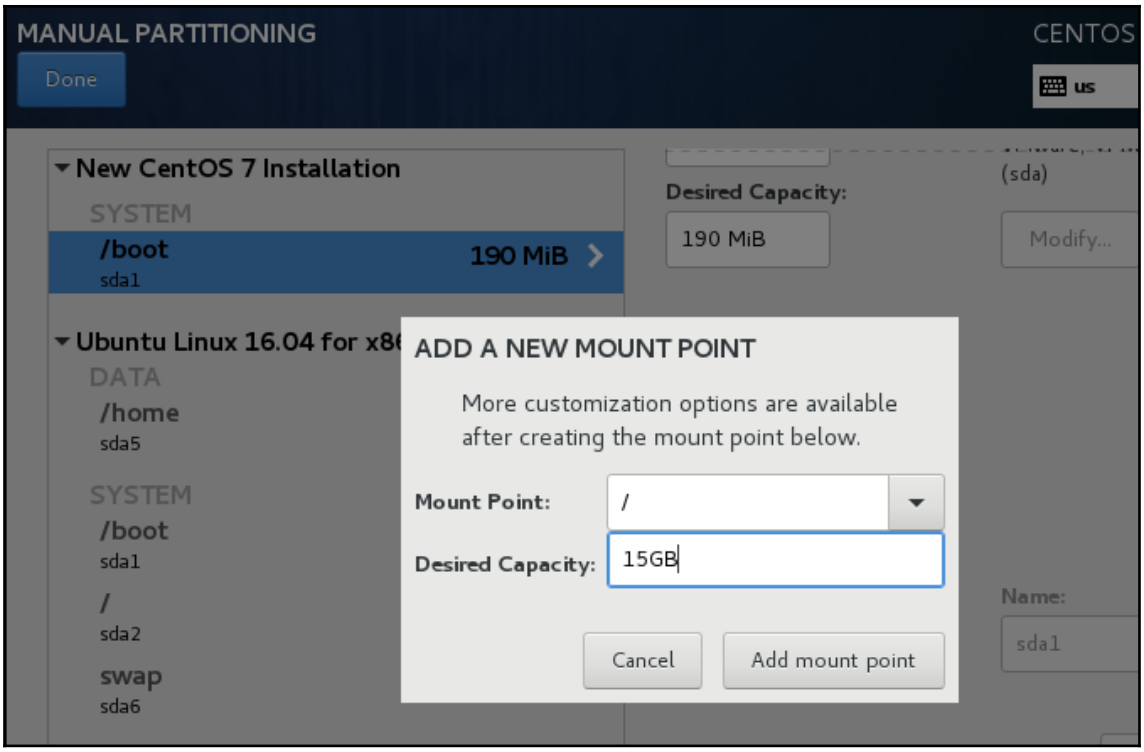

CentOS
CENTOS 7 INSTALLATION
us
Help!
WELCOME TO CENTOS 7.
What language would you like to use during the installation process?
English
English
Afrikaans
Afrikaans
አማርኛ
Amharic
العربية
Arabic
অসমীয়া
Assamese
Asturianu
Asturian
Беларуская
Belarusian
Български
Bulgarian
বাংলা
Bengali
English (United States)
English (United Kingdom)
English (India)
English (Australia)
English (Canada)
English (Denmark)
English (Ireland)
English (New Zealand)
English (Nigeria)
English (Hong Kong SAR China)
Quit
Continue

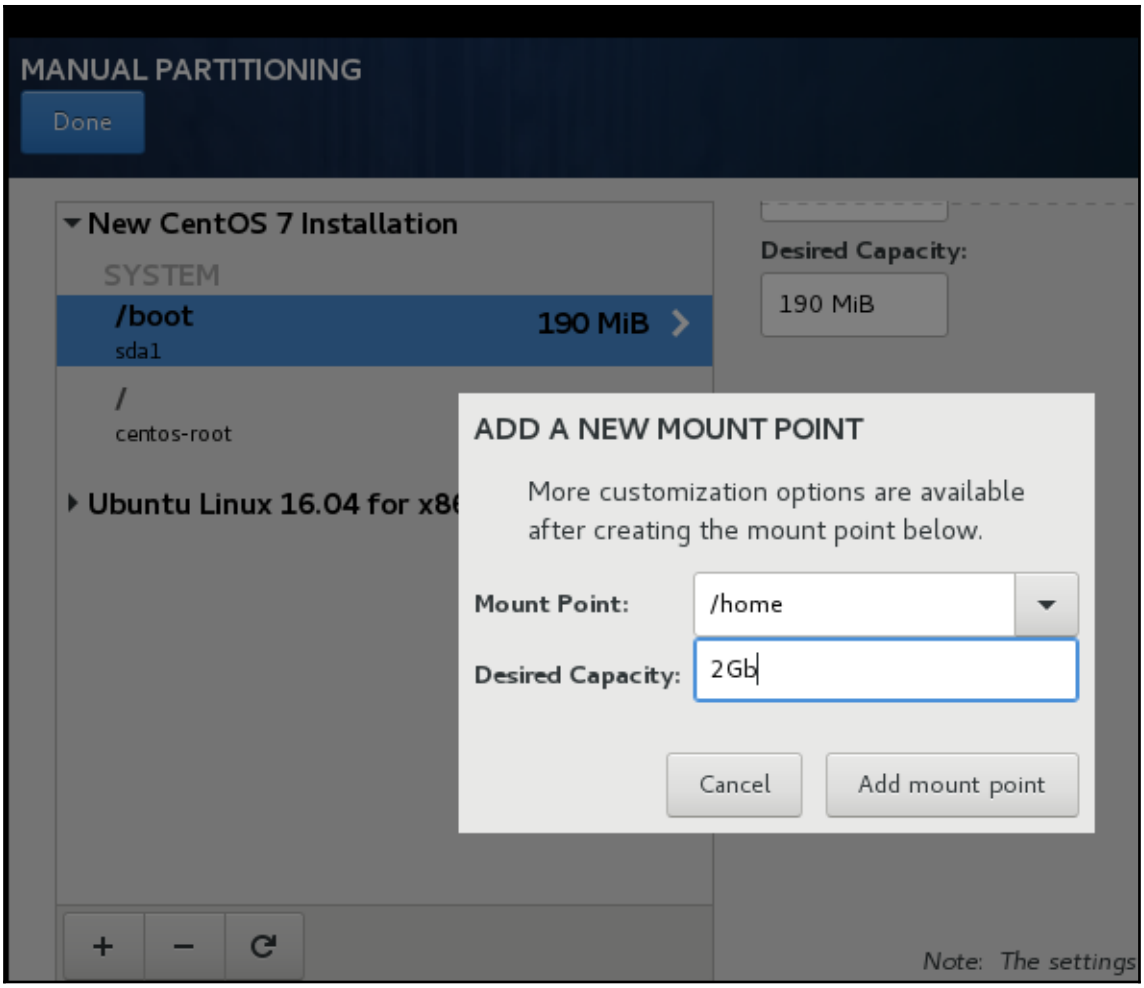

CentOS
INSTALLATION SUMMARY
CENTOS 7 INSTALLATION
us
Help!
DATE & TIME
Americas/New York timezone
KEYBOARD
English (US)
LANGUAGE SUPPORT
English (United States)
SOFTWARE
INSTALLATION SOURCE
Local media
SOFTWARE SELECTION
Minimal Install
SYSTEM
INSTALLATION DESTINATION
Automatic partitioning selected
KDUMP
Kdump is enabled
NETWORK & HOST NAME
SECURITY POLICY
Quit
Begin Installation
We won't touch your disks until you click 'Begin Installation'.

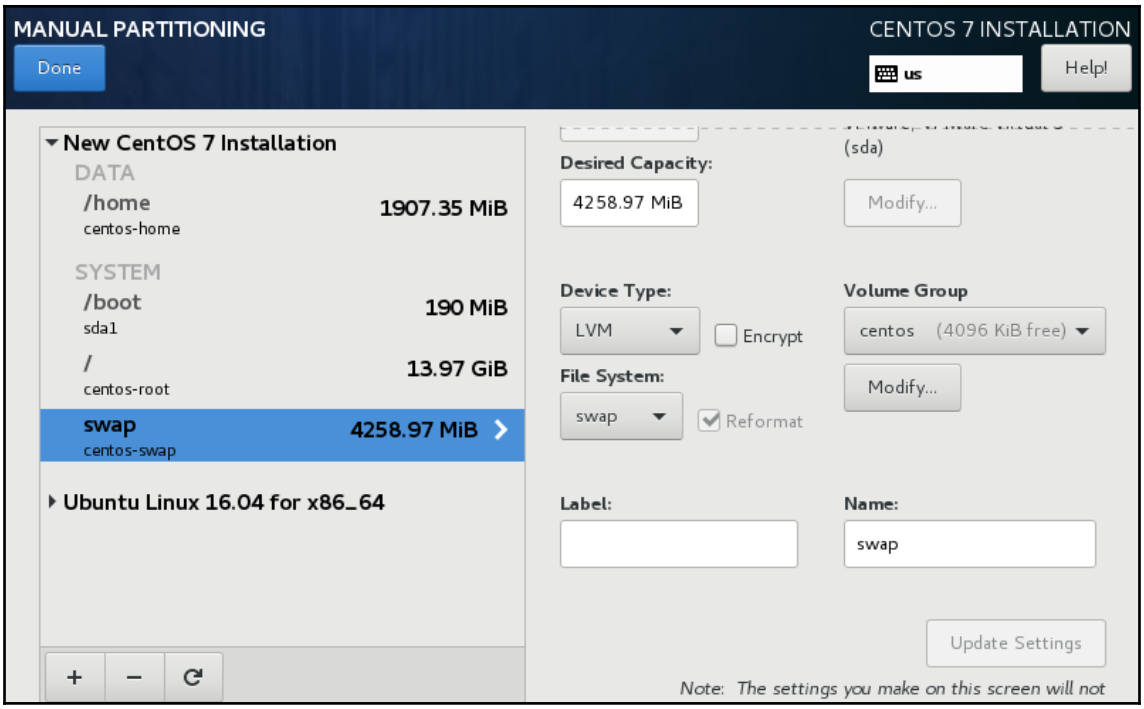

SOFTWARE SELECTION
Done
CENTOS 7 INSTALLATION
us
Help!
Base Environment
Minimal Install
Basic functionality.
Compute Node
Installation for performing computation and processing.
Infrastructure Server
Server for operating network infrastructure services.
File and Print Server
File, print, and storage server for enterprises.
Basic Web Server
Server for serving static and dynamic internet content.
Virtualization Host
Minimal virtualization host.
Server with GUI
Server for operating network infrastructure services, with a GUI.
GNOME Desktop
GNOME is a highly intuitive and user friendly desktop environment.
KDE Plasma Workspaces
The KDE Plasma Workspaces, a highly-configurable graphical user interface which includes a panel, desktop, system icons and desktop widgets, and many powerful KDE applications.
Add-Ons for Selected Environment
Backup Client
Client tools for connecting to a backup server and doing backups.
GNOME Applications
A set of commonly used GNOME Applications.
Internet Applications
Email, chat, and video conferencing software.
Legacy X Window System Compatibility
Compatibility programs for migration from or working with legacy X Window System environments.
Office Suite and Productivity
A full-purpose office suite, and other productivity tools.
Smart Card Support
Support for using smart card authentication.
Compatibility Libraries
Compatibility libraries for applications built on previous versions of CentOS Linux.
Development Tools
A basic development environment.
Security Tools
Security tools for integrity and trust verification.

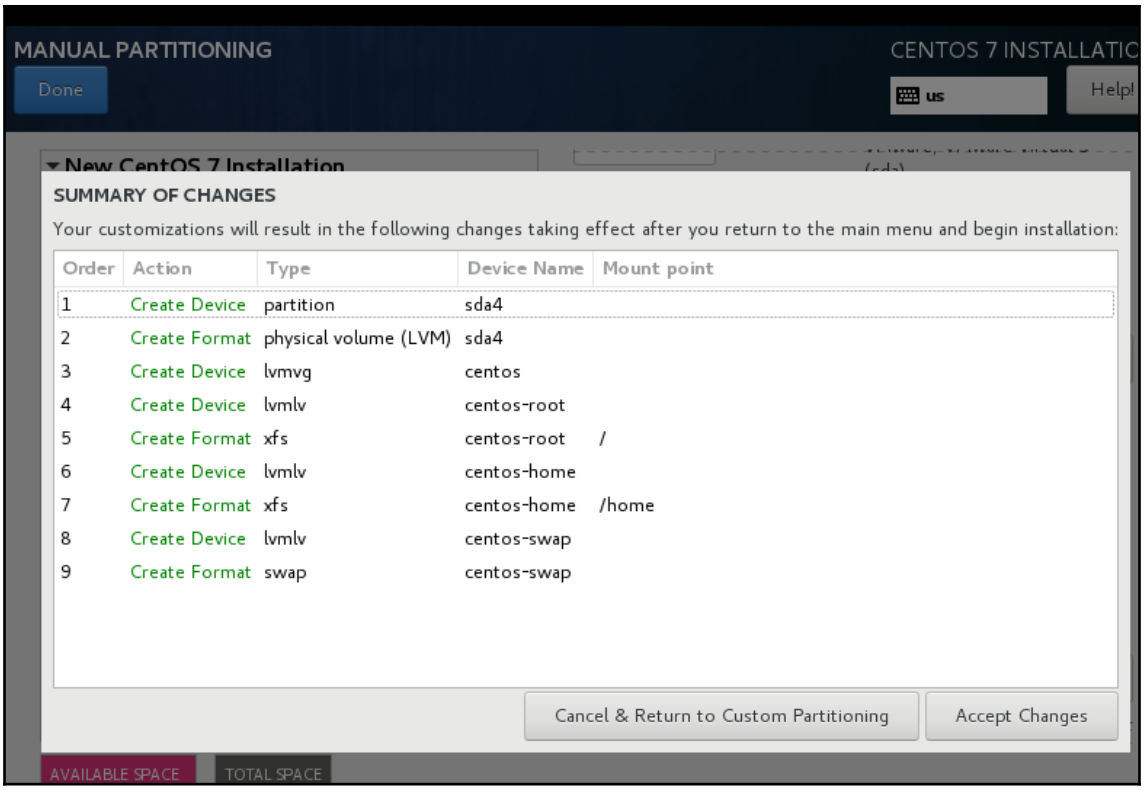

INSTALLATION DESTINATION
To direct input to this virtual machine, press Ctrl+G.
NTOS 7 INSTALLATION
Done
us
Help!
Local Standard Disks
40 GiB
VMware, VMware Virtual S
sda / 20 GiB free
Disks left unselected here will not be touched.
Specialized & Network Disks
Add a disk...
Disks left unselected here will not be touched.
Other Storage Options
Partitioning
Automatically configure partitioning.
I will configure partitioning.
I would like to make additional space available.
Encryption
Encrypt my data. You'll set a passphrase next.
Full disk summary and boot loader...
1 disk selected; 40 GiB capacity; 20 GiB free
Refresh...

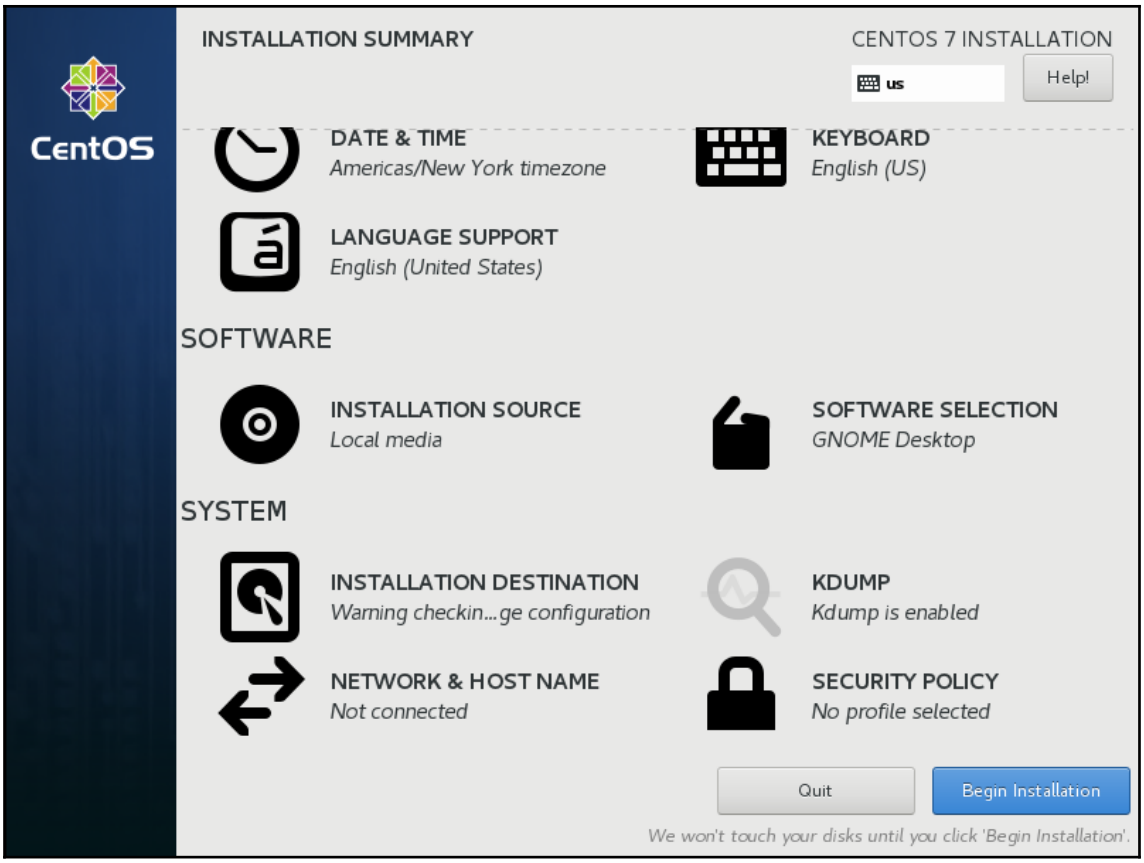

MANUAL PARTITIONING
Done
To direct input to this virtual machine, press Ctrl+G.
ENTOS 7 INSTALLATION
us
Help!
New CentOS 7 Installation
You haven't created any mount points for your CentOS 7 installation yet. You can:
Click here to create them automatically.
Create new mount points by clicking the '+' button.
Or, assign new mount points to existing partitions after selecting them below.
New mount points will use the following partitioning scheme:
LVM
Ubuntu Linux 16.04 for x86_64
When you create mount points for your CentOS 7 installation, you'll be able to view their details here.
+
−
AVAILABLE SPACE
20 GiB
TOTAL SPACE
40 GiB
1 storage device selected
Reset All

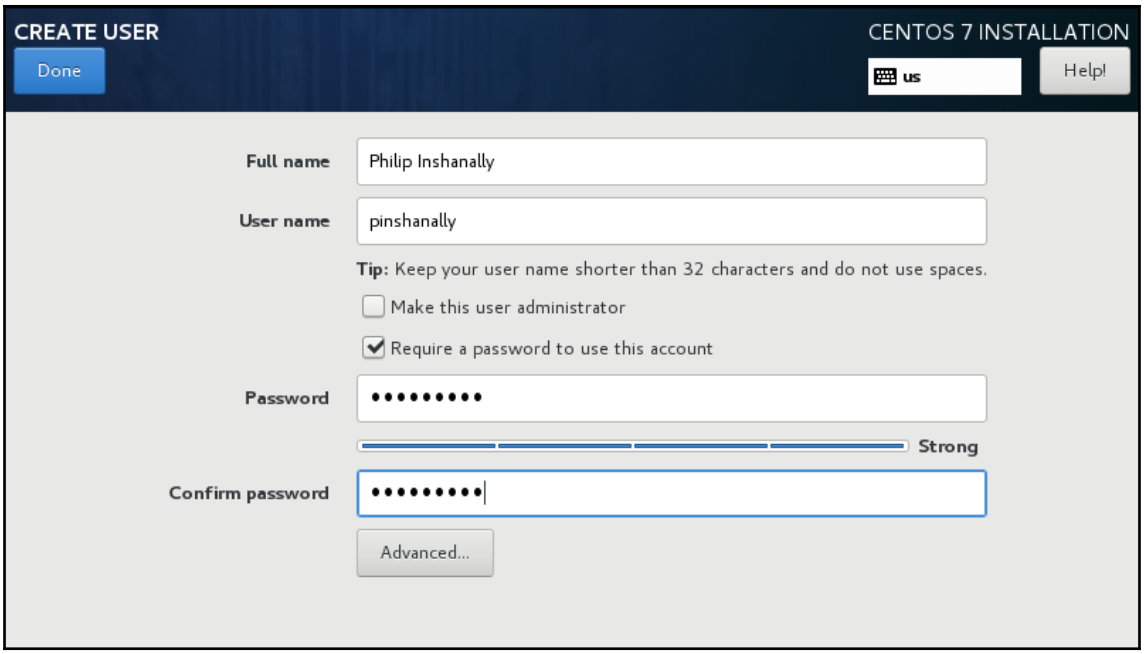

MANUAL PARTITIONING
Done
CENTOS
us
New CentOS 7 Installation
SYSTEM
/boot
sda1
190 MiB
Ubuntu Linux 16.04 for x8
DATA
/home
sda5
SYSTEM
/boot
sda1
/
sda2
swap
sda6
Desired Capacity:
190 MiB
(sda)
Modify...
Name:
sda1
ADD A NEW MOUNT POINT
More customization options are available after creating the mount point below.
Mount Point:
/
Desired Capacity:
15GB
Cancel
Add mount point

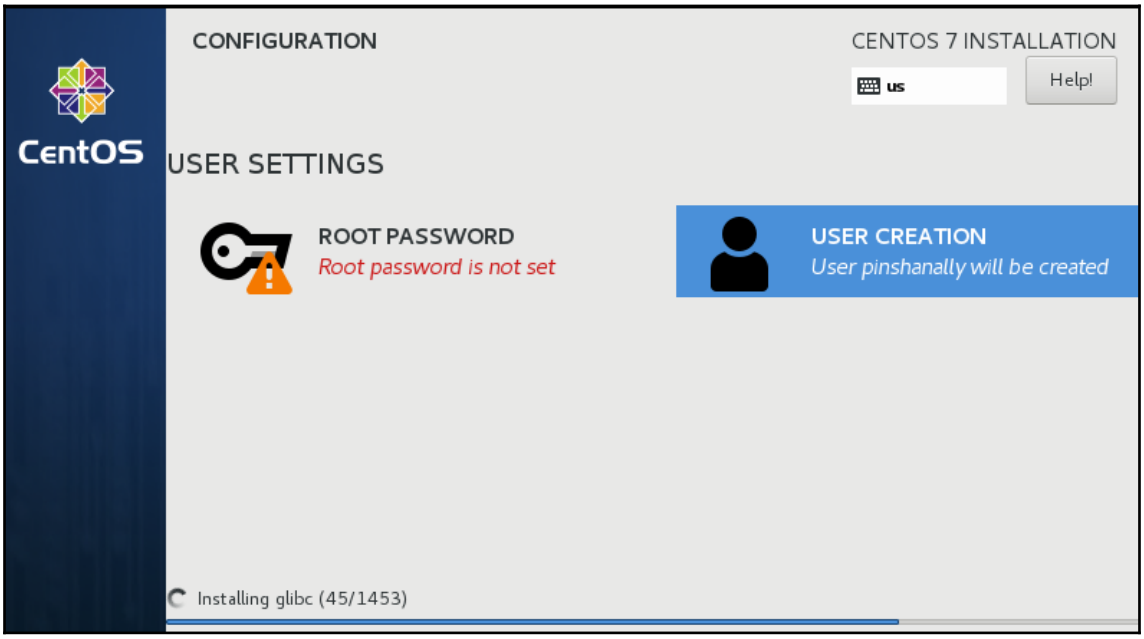

MANUAL PARTITIONING
Done
New CentOS 7 Installation
SYSTEM
/boot
sda1
190 MiB
/
centos-root
Ubuntu Linux 16.04 for x8
Desired Capacity:
190 MiB
ADD A NEW MOUNT POINT
More customization options are available after creating the mount point below.
Mount Point:
/home
Desired Capacity:
2Gb
Cancel
Add mount point
Note: The settings

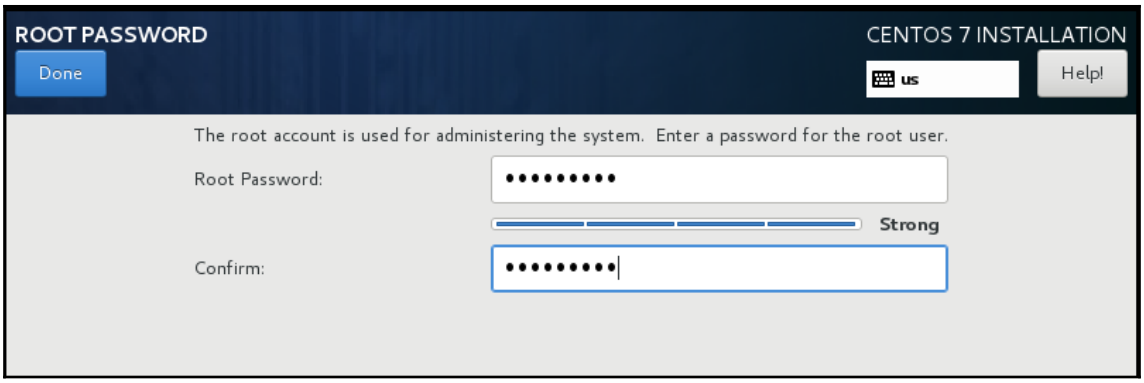

MANUAL PARTITIONING
Done
CENTOS 7 INSTALLATION
us
Help!
New CentOS 7 Installation
DATA
/home
centos-home
1907.35 MiB
SYSTEM
/boot
sda1
190 MiB
/
centos-root
13.97 GiB
swap
centos-swap
4258.97 MiB
Ubuntu Linux 16.04 for x86_64
(sda)
Desired Capacity:
4258.97 MiB
Modify...
Device Type:
LVM
Encrypt
Volume Group
centos (4096 KiB free)
File System:
swap
Reformat
Modify...
Label:
Name:
swap
Update Settings
Note: The settings you make on this screen will not

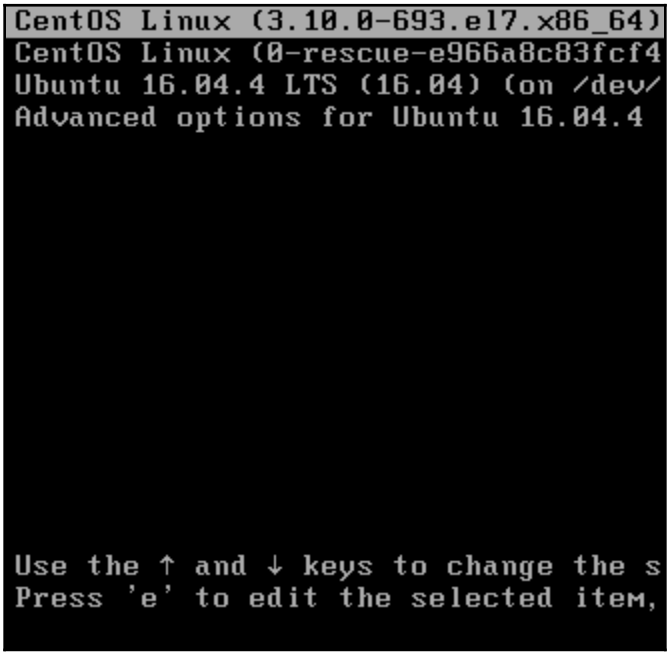

MANUAL PARTITIONING
Done
CENTOS 7 INSTALLATIC
us
Help!
New CentOS 7 Installation
SUMMARY OF CHANGES
Your customizations will result in the following changes taking effect after you return to the main menu and begin installation:
Order Action Type Device Name Mount point
1 Create Device partition sda4
2 Create Format physical volume (LVM) sda4
3 Create Device lvmvg centos
4 Create Device lvmlv centos-root
5 Create Format xfs centos-root /
6 Create Device lvmlv centos-home
7 Create Format xfs centos-home /home
8 Create Device lvmlv centos-swap
9 Create Format swap centos-swap
Cancel & Return to Custom Partitioning
Accept Changes
AVAILABLE SPACE
TOTAL SPACE


CentOS
INSTALLATION SUMMARY
CENTOS 7 INSTALLATION
us
Help!
DATE & TIME
Americas/New York timezone
KEYBOARD
English (US)
LANGUAGE SUPPORT
English (United States)
SOFTWARE
INSTALLATION SOURCE
Local media
SOFTWARE SELECTION
GNOME Desktop
SYSTEM
INSTALLATION DESTINATION
Warning checkin...ge configuration
KDUMP
Kdump is enabled
NETWORK & HOST NAME
Not connected
SECURITY POLICY
No profile selected
Quit
Begin Installation
We won't touch your disks until you click 'Begin Installation'.

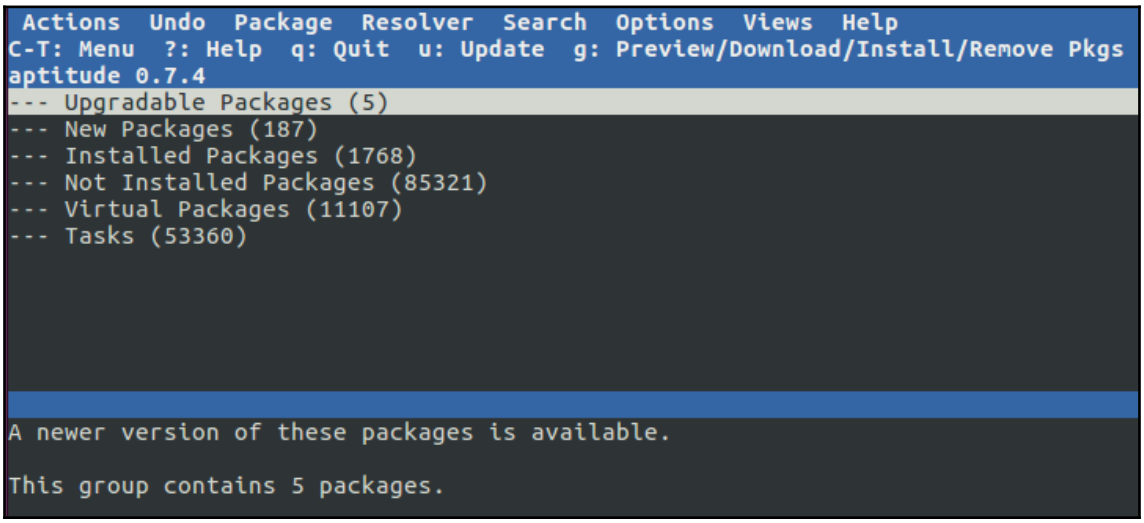

CREATE USER
Done
CENTOS 7 INSTALLATION
us
Help!
Full name
Philip Inshanally
User name
pinshanally
Tip: Keep your user name shorter than 32 characters and do not use spaces.
Make this user administrator
Require a password to use this account
Password
Strong
Confirm password
Advanced...

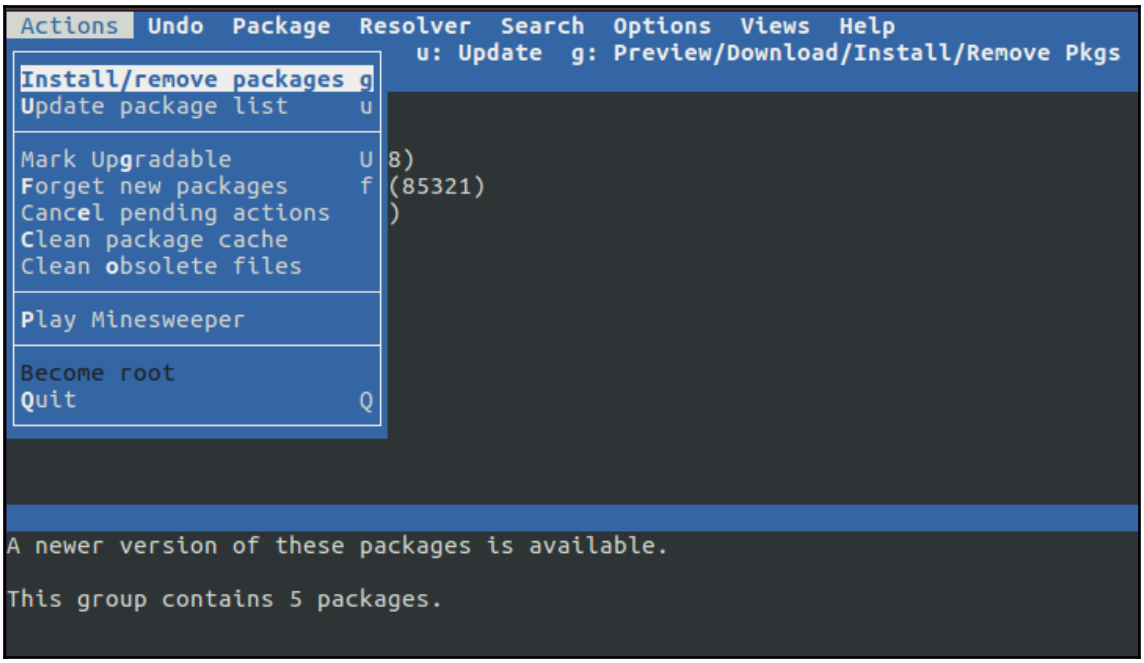

CentOS
CONFIGURATION
CENTOS 7 INSTALLATION
us
Help!
USER SETTINGS
ROOT PASSWORD
Root password is not set
USER CREATION
User pinshanally will be created
Installing glibc (45/1453)

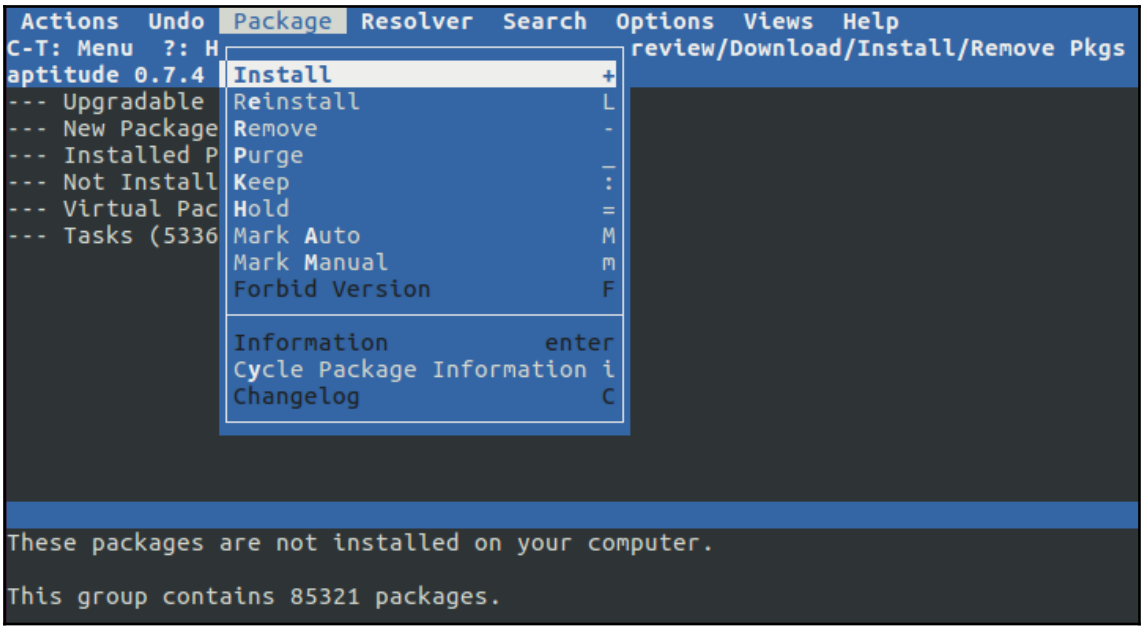

ROOT PASSWORD
Done
CENTOS 7 INSTALLATION
us
Help!
The root account is used for administering the system. Enter a password for the root user.
Root Password:
Strong
Confirm:

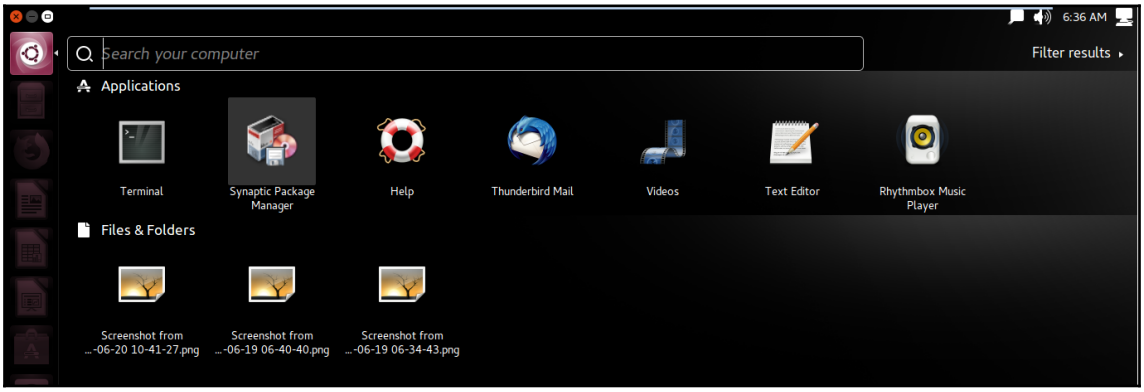

CentOS Linux (3.10.0-693.el7.x86_64)
CentOS Linux (0-rescue-e966a8c83fcf4
Ubuntu 16.04.4 LTS (16.04) (on /dev/
Advanced options for Ubuntu 16.04.4
Use the ↑ and ↓ keys to change the s
Press 'e' to edit the selected item,

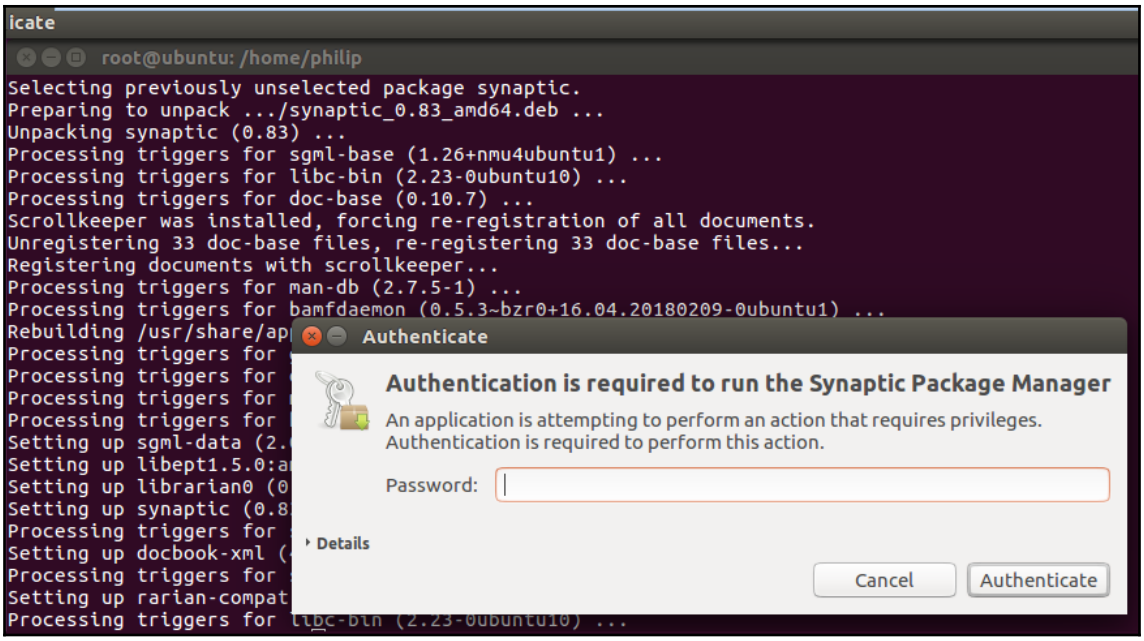
Chapter 6: Using Debian Package Management

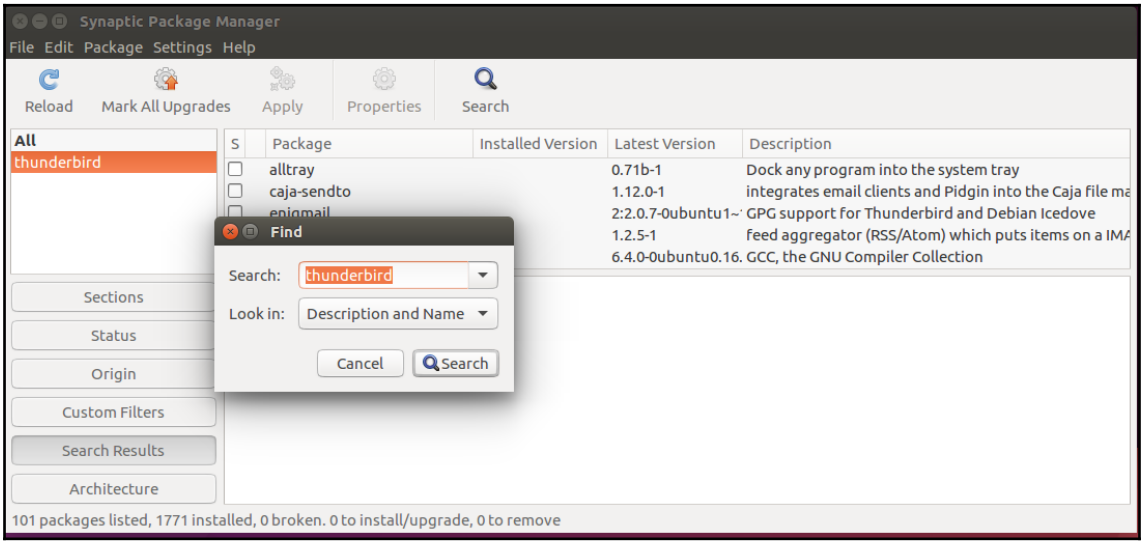


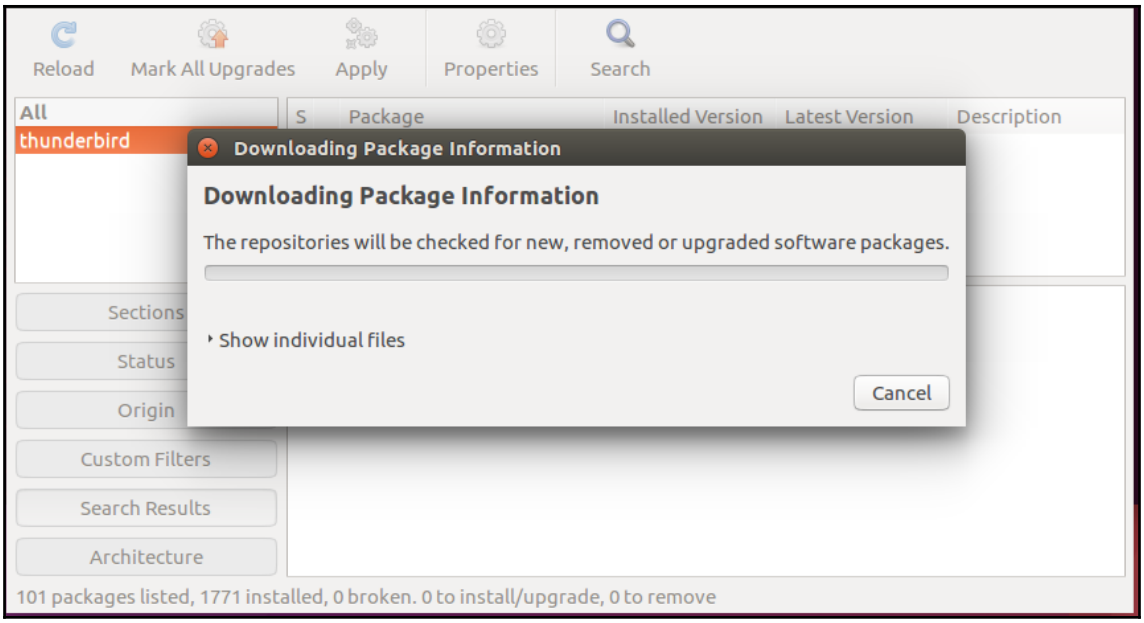



Actions Undo Package Resolver Search Options Views Help
C-T: Menu ?: H
review/Download/Install/Remove Pkgs
aptitude 0.7.4
--- Upgradable
--- New Package
--- Installed P
--- Not Install
--- Virtual Pac
--- Tasks (5336
Install +
Reinstall L
Remove -
Purge _
Keep :
Hold =
Mark Auto M
Mark Manual m
Forbid Version F
Information enter
Cycle Package Information i
Changelog C
These packages are not installed on your computer.
This group contains 85321 packages.

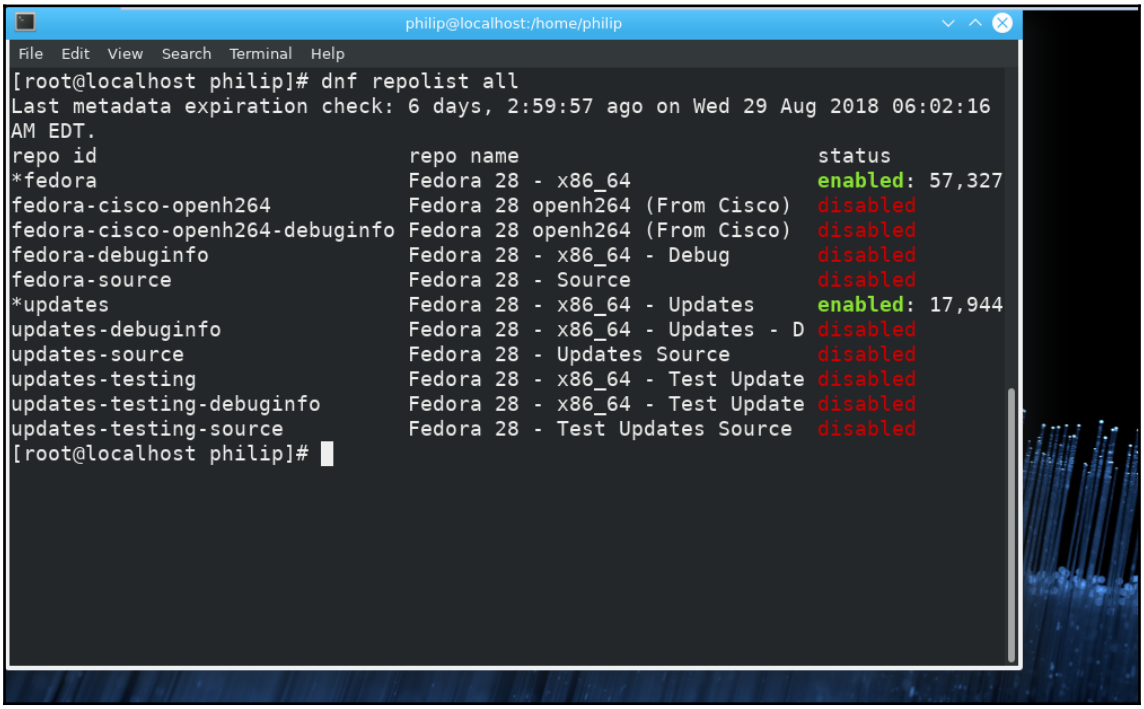

6:36 AM
Search your computer
Filter results
Applications
Terminal
Synaptic Package Manager
Help
Thunderbird Mail
Videos
Text Editor
Rhythmbox Music Player
Files & Folders
Screenshot from ...-06-20 10-41-27.png
Screenshot from ...-06-19 06-40-40.png
Screenshot from ...-06-19 06-34-43.png

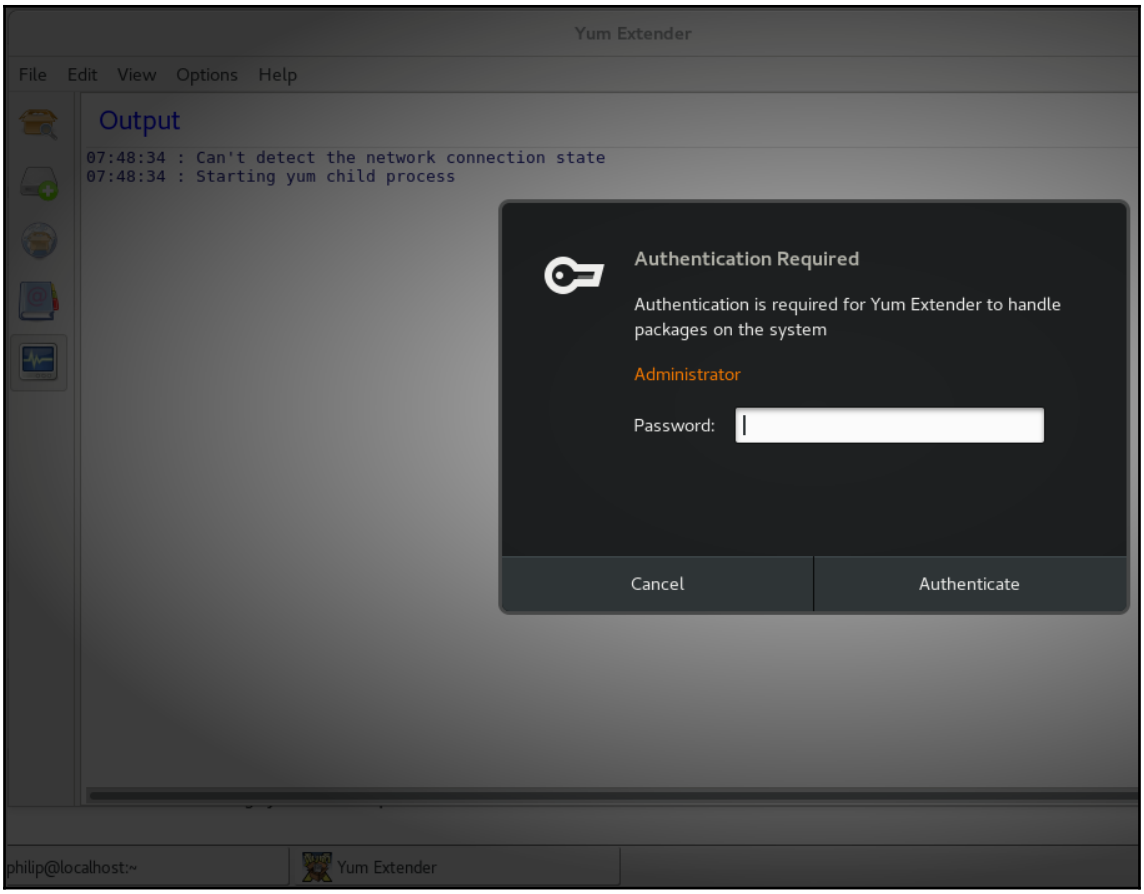

icate
root@ubuntu: /home/philip
Selecting previously unselected package synaptic.
Preparing to unpack .../synaptic_0.83_amd64.deb ...
Unpacking synaptic (0.83) ...
Processing triggers for sgml-base (1.26+nmu4ubuntu1) ...
Processing triggers for libc-bin (2.23-0ubuntu10) ...
Processing triggers for doc-base (0.10.7) ...
Scrollkeeper was installed, forcing re-registration of all documents.
Unregistering 33 doc-base files, re-registering 33 doc-base files...
Registering documents with scrollkeeper...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for bamfdaemon (0.5.3~bzr0+16.04.20180209-0ubuntu1) ...
Authenticate
Authentication is required to run the Synaptic Package Manager
An application is attempting to perform an action that requires privileges.
Authentication is required to perform this action.
Password:
Details
Cancel
Authenticate

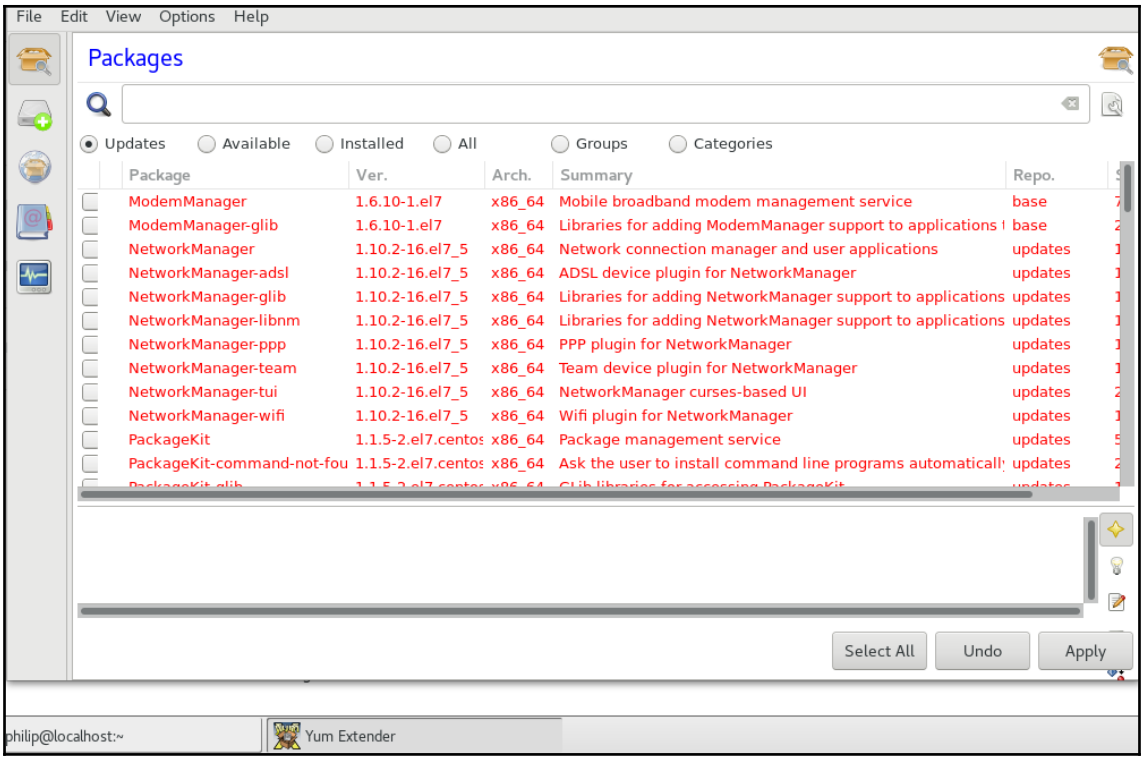

Synaptic Package Manager
File Edit Package Settings Help
Reload
Mark All Upgrades
Apply
Properties
Search
All
thunderbird
S
Package
Installed Version
Latest Version
Description
alltray
0.71b-1
Dock any program into the system tray
caja-sendto
1.12.0-1
integrates email clients and Pidgin into the Caja file ma
2:2.0.7-0ubuntu1~
GPG support for Thunderbird and Debian Icedove
1.2.5-1
feed aggregator (RSS/Atom) which puts items on a IM
6.4.0-0ubuntu0.16.
GCC, the GNU Compiler Collection
Find
Search:
thunderbird
Look in:
Description and Name
Cancel
Search
Sections
Status
Origin
Custom Filters
Search Results
Architecture
101 packages listed, 1771 installed, 0 broken. 0 to install/upgrade, 0 to remove

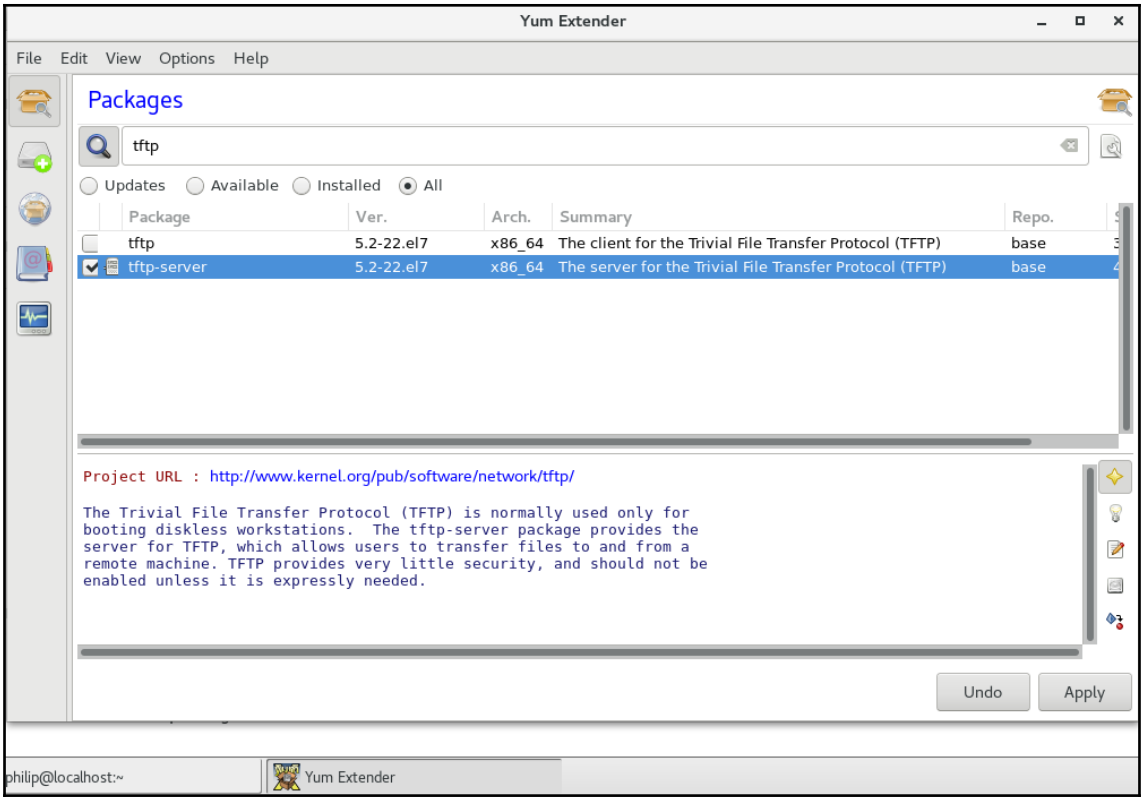

Reload
Mark All Upgrades
Apply
Properties
Search
All
thunderbird
S
Package
Installed Version
Latest Version
Description
Downloading Package Information
Downloading Package Information
The repositories will be checked for new, removed or upgraded software packages.
Show individual files
Cancel
Sections
Status
Origin
Custom Filters
Search Results
Architecture
101 packages listed, 1771 installed, 0 broken. 0 to install/upgrade, 0 to remove

Chapter 7: Using YUM Package Management

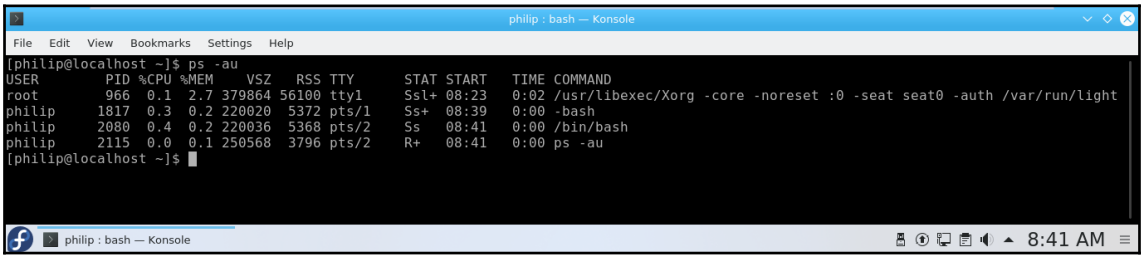


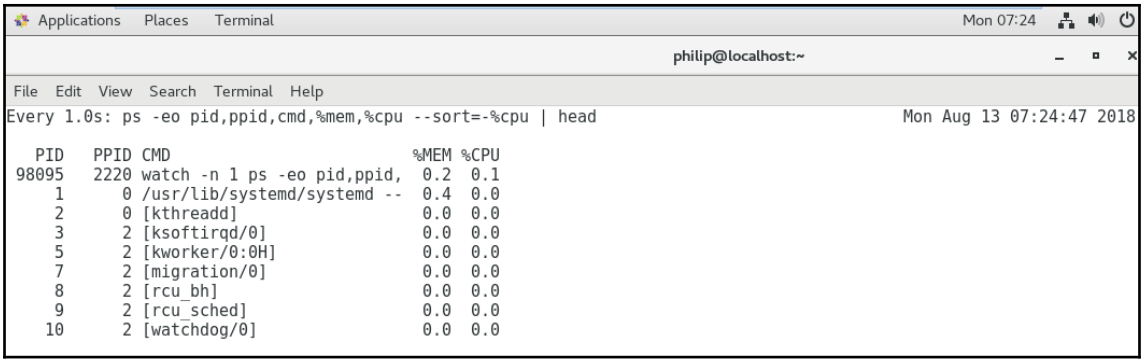

Yum Extender
File Edit View Options Help
Output
07:48:34 : Can't detect the network connection state
07:48:34 : Starting yum child process
Authentication Required
Authentication is required for Yum Extender to handle packages on the system
Administrator
Password:
Cancel
Authenticate
philip@localhost:~
Yum Extender

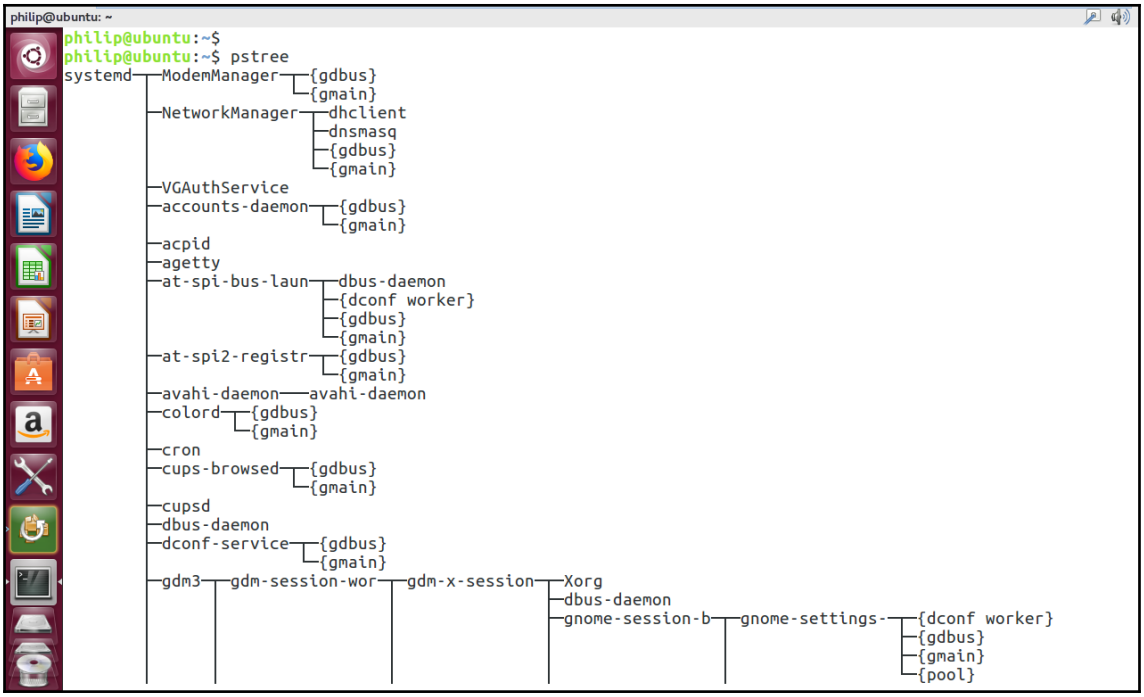

File Edit View Options Help
Packages
Updates Available Installed All Groups Categories
Package Ver. Arch. Summary Repo.
ModemManager 1.6.10-1.el7 x86_64 Mobile broadband modem management service base
ModemManager-glib 1.6.10-1.el7 x86_64 Libraries for adding ModemManager support to applications base
NetworkManager 1.10.2-16.el7_5 x86_64 Network connection manager and user applications updates
NetworkManager-adsl 1.10.2-16.el7_5 x86_64 ADSL device plugin for NetworkManager updates
NetworkManager-glib 1.10.2-16.el7_5 x86_64 Libraries for adding NetworkManager support to applications updates
NetworkManager-libnm 1.10.2-16.el7_5 x86_64 Libraries for adding NetworkManager support to applications updates
NetworkManager-ppp 1.10.2-16.el7_5 x86_64 PPP plugin for NetworkManager updates
NetworkManager-team 1.10.2-16.el7_5 x86_64 Team device plugin for NetworkManager updates
NetworkManager-tui 1.10.2-16.el7_5 x86_64 NetworkManager curses-based UI updates
NetworkManager-wifi 1.10.2-16.el7_5 x86_64 Wifi plugin for NetworkManager updates
PackageKit 1.1.5-2.el7.centos x86_64 Package management service updates
PackageKit-command-not-fou 1.1.5-2.el7.centos x86_64 Ask the user to install command line programs automatically updates
Select All
Undo
Apply
philip@localhost:~
Yum Extender

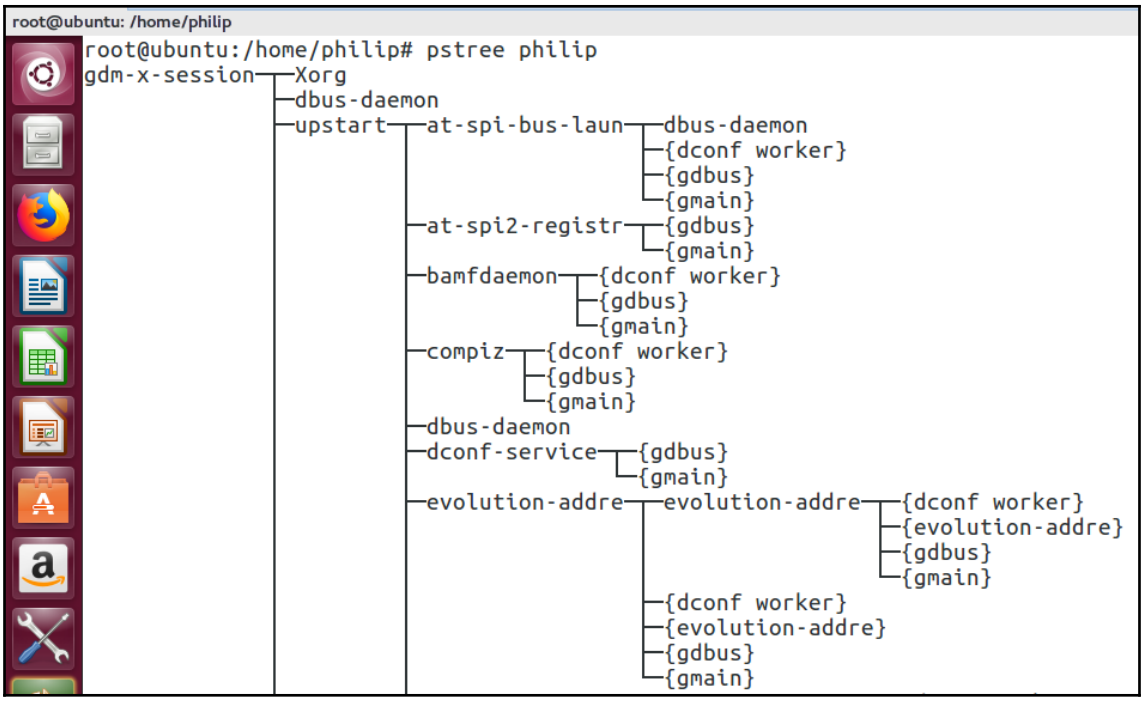

Yum Extender
File Edit View Options Help
Packages
tftp
Updates Available Installed All
Package Ver. Arch. Summary Repo.
tftp 5.2-22.el7 x86_64 The client for the Trivial File Transfer Protocol (TFTP) base
tftp-server 5.2-22.el7 x86_64 The server for the Trivial File Transfer Protocol (TFTP) base
Project URL : http://www.kernel.org/pub/software/network/tftp/
The Trivial File Transfer Protocol (TFTP) is normally used only for booting diskless workstations. The tftp-server package provides the server for TFTP, which allows users to transfer files to and from a remote machine. TFTP provides very little security, and should not be enabled unless it is expressly needed.
Undo
Apply
philip@localhost:~
Yum Extender

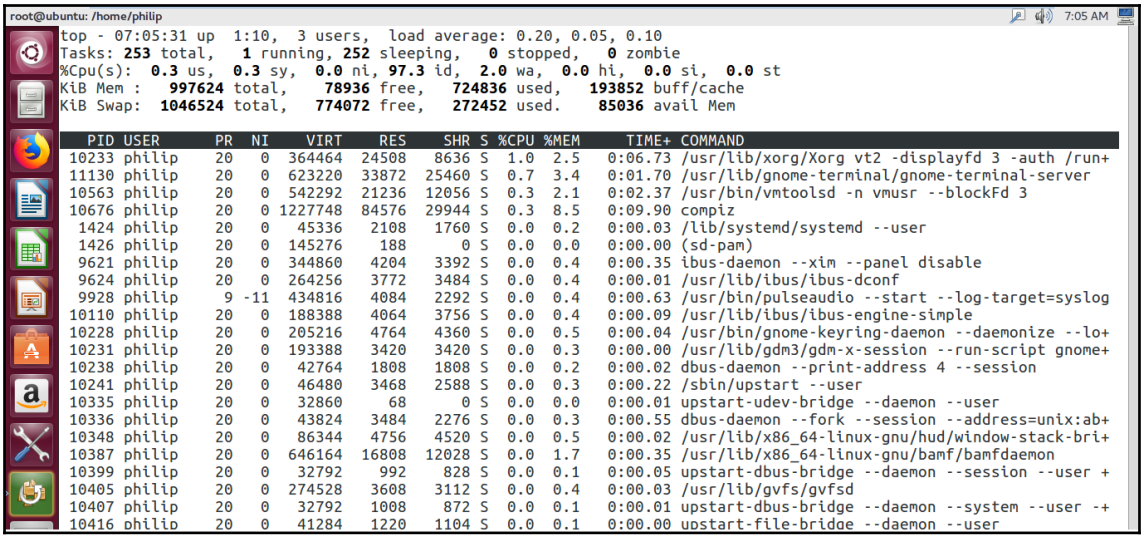
Chapter 9: Creating, Monitoring, Killing, and Restarting Processes

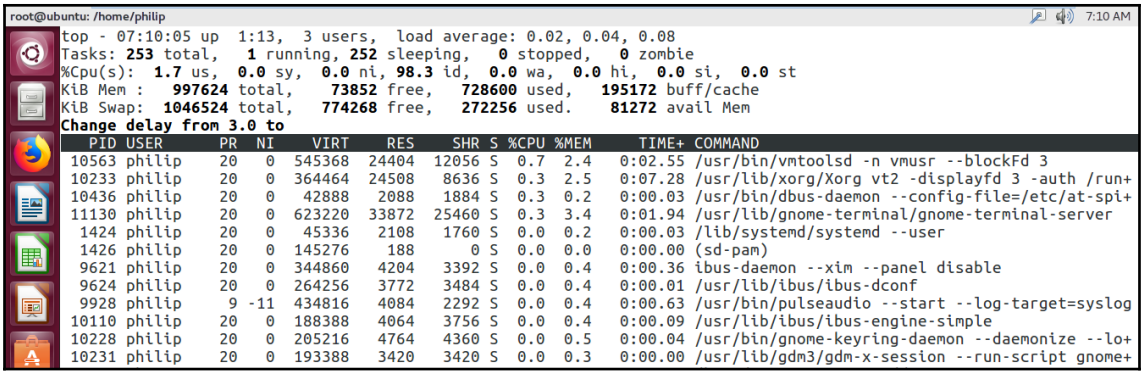


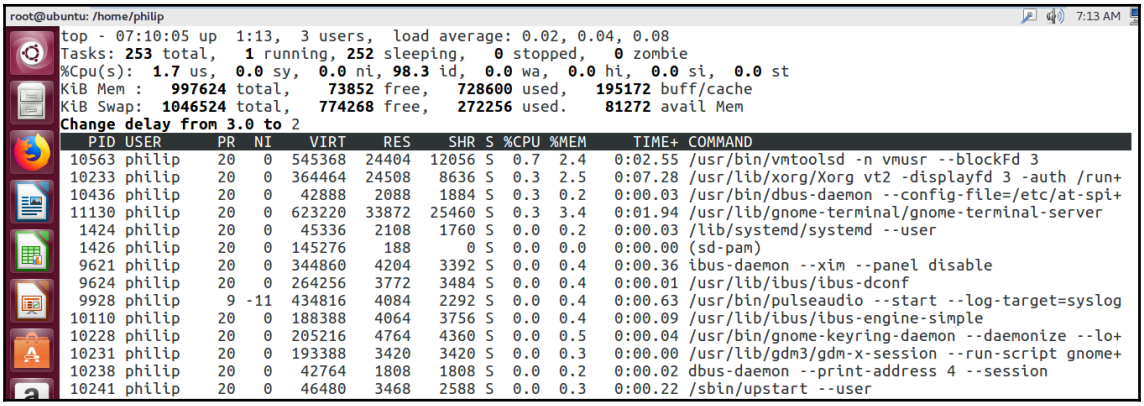


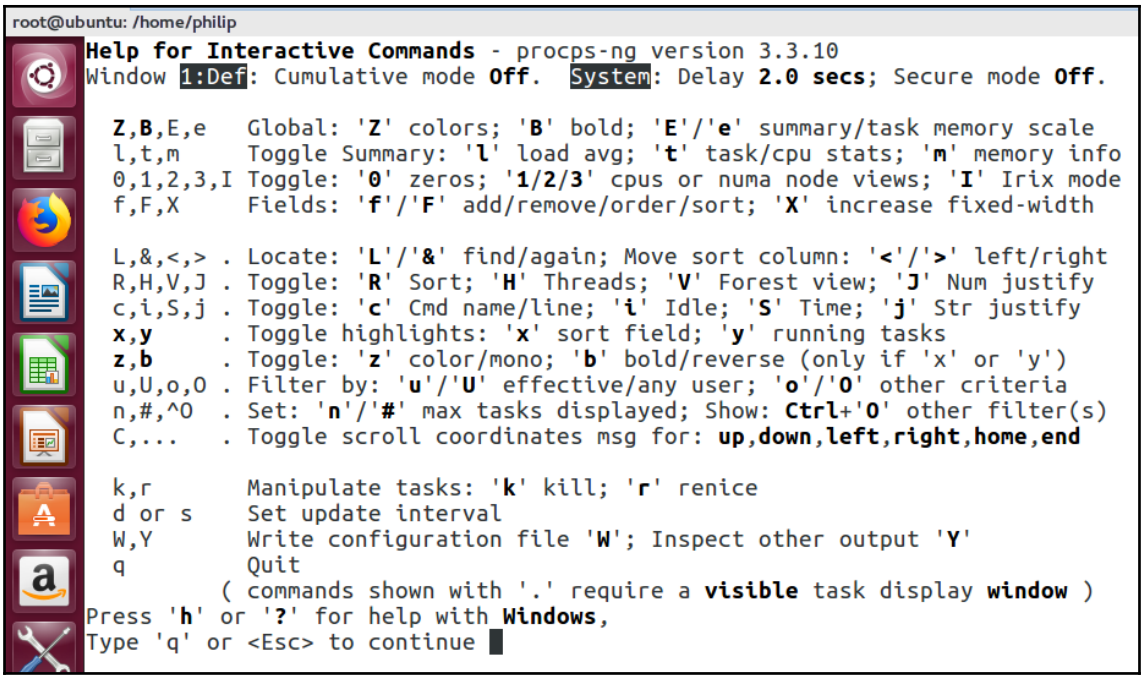

philip@ubuntu: ~
philip@ubuntu:~$
philip@ubuntu:~$ pstree
systemd─┬─ModemManager─┬─{gdbus}
│ └─{gmain}
├─NetworkManager─┬─dhclient
│ ├─dnsmasq
│ ├─{gdbus}
│ └─{gmain}
├─VGAuthService
├─accounts-daemon─┬─{gdbus}
│ └─{gmain}
├─acpid
├─agetty
├─at-spi-bus-laun─┬─dbus-daemon
│ ├─{dconf worker}
│ ├─{gdbus}
│ └─{gmain}
├─at-spi2-registr─┬─{gdbus}
│ └─{gmain}
├─avahi-daemon───avahi-daemon
├─colord─┬─{gdbus}
│ └─{gmain}
├─cron
├─cups-browsed─┬─{gdbus}
│ └─{gmain}
├─cupsd
├─dbus-daemon
├─dconf-service─┬─{gdbus}
│ └─{gmain}
├─gdm3─┬─gdm-session-wor─┬─gdm-x-session─┬─Xorg
│ │ ├─dbus-daemon
│ │ └─gnome-session-b─┬─gnome-settings-─┬─{dconf worker}
│ │ ├─{gdbus}
│ │ ├─{gmain}
│ │ └─{pool}

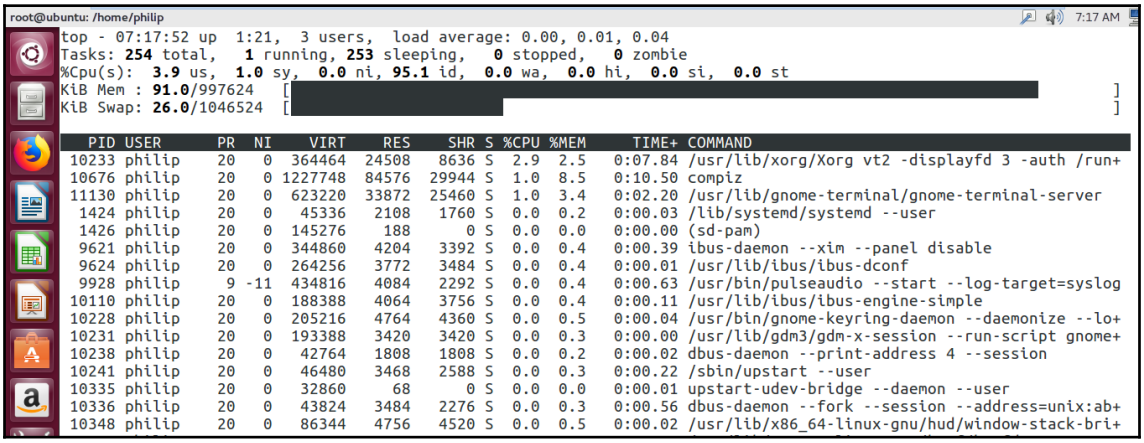

root@ubuntu: /home/philip
root@ubuntu:/home/philip# pstree philip
gdm-x-session─┬─Xorg
├─dbus-daemon
├─upstart─┬─at-spi-bus-laun─┬─dbus-daemon
│ ├─{dconf worker}
│ ├─{gdbus}
│ └─{gmain}
│ ├─at-spi2-registr─┬─{gdbus}
│ │ └─{gmain}
│ ├─bamfdaemon─┬─{dconf worker}
│ │ ├─{gdbus}
│ │ └─{gmain}
│ ├─compiz─┬─{dconf worker}
│ │ ├─{gdbus}
│ │ └─{gmain}
│ ├─dbus-daemon
│ ├─dconf-service─┬─{gdbus}
│ │ └─{gmain}
│ ├─evolution-addre─┬─evolution-addre─┬─{dconf worker}
│ │ ├─{evolution-addre}
│ │ ├─{gdbus}
│ │ └─{gmain}
│ │ ├─{dconf worker}
│ │ ├─{evolution-addre}
│ │ ├─{gdbus}
│ │ └─{gmain}

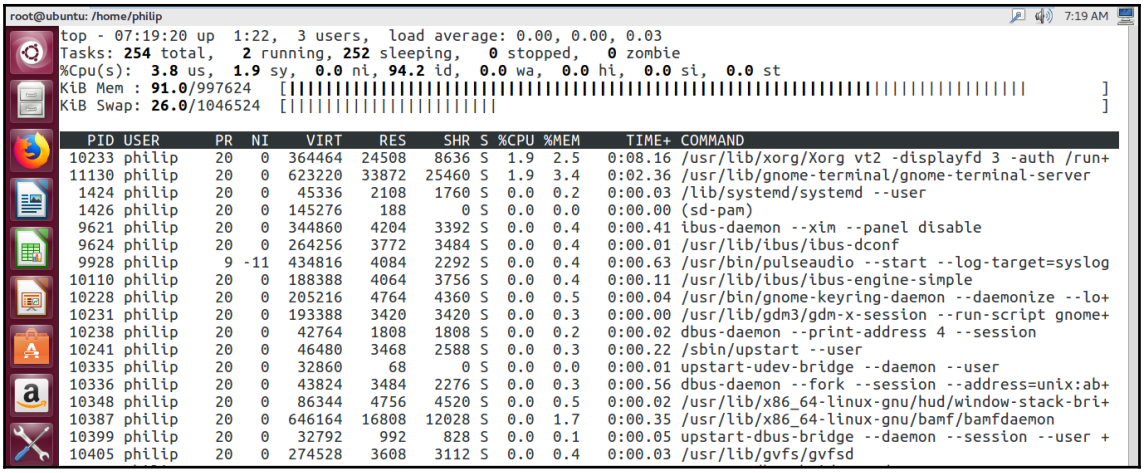

root@ubuntu: /home/philip
7:05 AM
top - 07:05:31 up 1:10, 3 users, load average: 0.20, 0.05, 0.10
Tasks: 253 total, 1 running, 252 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.3 us, 0.3 sy, 0.0 ni, 97.3 id, 2.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 997624 total, 78936 free, 724836 used, 193852 buff/cache
KiB Swap: 1046524 total, 774072 free, 272452 used. 85036 avail Mem
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
10233 philip 20 0 364464 24508 8636 S 1.0 2.5 0:06.73 /usr/lib/xorg/Xorg vt2 -displayfd 3 -auth /run+
11130 philip 20 0 623220 33872 25460 S 0.7 3.4 0:01.70 /usr/lib/gnome-terminal/gnome-terminal-server
10563 philip 20 0 542292 21236 12056 S 0.3 2.1 0:02.37 /usr/bin/vmtoolsd -n vmusr --blockFd 3
10676 philip 20 0 1227748 84576 29944 S 0.3 8.5 0:09.90 compiz
1424 philip 20 0 45336 2108 1760 S 0.0 0.2 0:00.03 /lib/systemd/systemd --user
1426 philip 20 0 145276 188 0 S 0.0 0.0 0:00.00 (sd-pam)
9621 philip 20 0 344860 4204 3392 S 0.0 0.4 0:00.35 ibus-daemon --xim --panel disable
9624 philip 20 0 264256 3772 3484 S 0.0 0.4 0:00.01 /usr/lib/ibus/ibus-dconf
9928 philip 9 -11 434816 4084 2292 S 0.0 0.4 0:00.63 /usr/bin/pulseaudio --start --log-target=syslog
10110 philip 20 0 188388 4064 3756 S 0.0 0.4 0:00.09 /usr/lib/ibus/ibus-engine-simple
10228 philip 20 0 205216 4764 4360 S 0.0 0.5 0:00.04 /usr/bin/gnome-keyring-daemon --daemonize --lo+
10231 philip 20 0 193388 3420 3420 S 0.0 0.3 0:00.00 /usr/lib/gdm3/gdm-x-session --run-script gnome+
10238 philip 20 0 42764 1808 1808 S 0.0 0.2 0:00.02 dbus-daemon --print-address 4 --session
10241 philip 20 0 46480 3468 2588 S 0.0 0.3 0:00.22 /sbin/upstart --user
10335 philip 20 0 32860 68 0 S 0.0 0.0 0:00.01 upstart-udev-bridge --daemon --user
10336 philip 20 0 43824 3484 2276 S 0.0 0.3 0:00.55 dbus-daemon --fork --session --address=unix:ab+
10348 philip 20 0 86344 4756 4520 S 0.0 0.5 0:00.02 /usr/lib/x86_64-linux-gnu/hud/window-stack-bri+
10387 philip 20 0 646164 16808 12028 S 0.0 1.7 0:00.35 /usr/lib/x86_64-linux-gnu/bamf/bamfdaemon
10399 philip 20 0 32792 992 828 S 0.0 0.1 0:00.05 upstart-dbus-bridge --daemon --session --user +
10405 philip 20 0 274528 3608 3112 S 0.0 0.4 0:00.03 /usr/lib/gvfs/gvfsd
10407 philip 20 0 32792 1008 872 S 0.0 0.1 0:00.01 upstart-dbus-bridge --daemon --system --user -+
10416 philip 20 0 41284 1220 1104 S 0.0 0.1 0:00.00 upstart-file-bridge --daemon --user

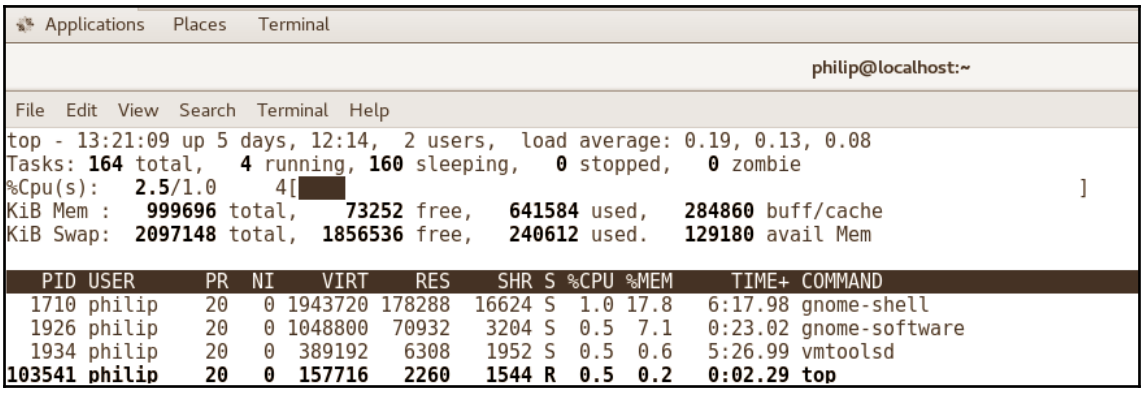

root@ubuntu: /home/philip
7:10 AM
top - 07:10:05 up 1:13, 3 users, load average: 0.02, 0.04, 0.08
Tasks: 253 total, 1 running, 252 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.7 us, 0.0 sy, 0.0 ni, 98.3 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 997624 total, 73852 free, 728600 used, 195172 buff/cache
KiB Swap: 1046524 total, 774268 free, 272256 used. 81272 avail Mem
Change delay from 3.0 to
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
10563 philip 20 0 545368 24404 12056 S 0.7 2.4 0:02.55 /usr/bin/vmtoolsd -n vmusr --blockFd 3
10233 philip 20 0 364464 24508 8636 S 0.3 2.5 0:07.28 /usr/lib/xorg/Xorg vt2 -displayfd 3 -auth /run+
10436 philip 20 0 42888 2088 1884 S 0.3 0.2 0:00.03 /usr/bin/dbus-daemon --config-file=/etc/at-spi+
11130 philip 20 0 623220 33872 25460 S 0.3 3.4 0:01.94 /usr/lib/gnome-terminal/gnome-terminal-server
1424 philip 20 0 45336 2108 1760 S 0.0 0.2 0:00.03 /lib/systemd/systemd --user
1426 philip 20 0 145276 188 0 S 0.0 0.0 0:00.00 (sd-pam)
9621 philip 20 0 344860 4204 3392 S 0.0 0.4 0:00.36 ibus-daemon --xim --panel disable
9624 philip 20 0 264256 3772 3484 S 0.0 0.4 0:00.01 /usr/lib/ibus/ibus-dconf
9928 philip 9 -11 434816 4084 2292 S 0.0 0.4 0:00.63 /usr/bin/pulseaudio --start --log-target=syslog
10110 philip 20 0 188388 4064 3756 S 0.0 0.4 0:00.09 /usr/lib/ibus/ibus-engine-simple
10228 philip 20 0 205216 4764 4360 S 0.0 0.5 0:00.04 /usr/bin/gnome-keyring-daemon --daemonize --lo+
10231 philip 20 0 193388 3420 3420 S 0.0 0.3 0:00.00 /usr/lib/gdm3/gdm-x-session --run-script gnome+

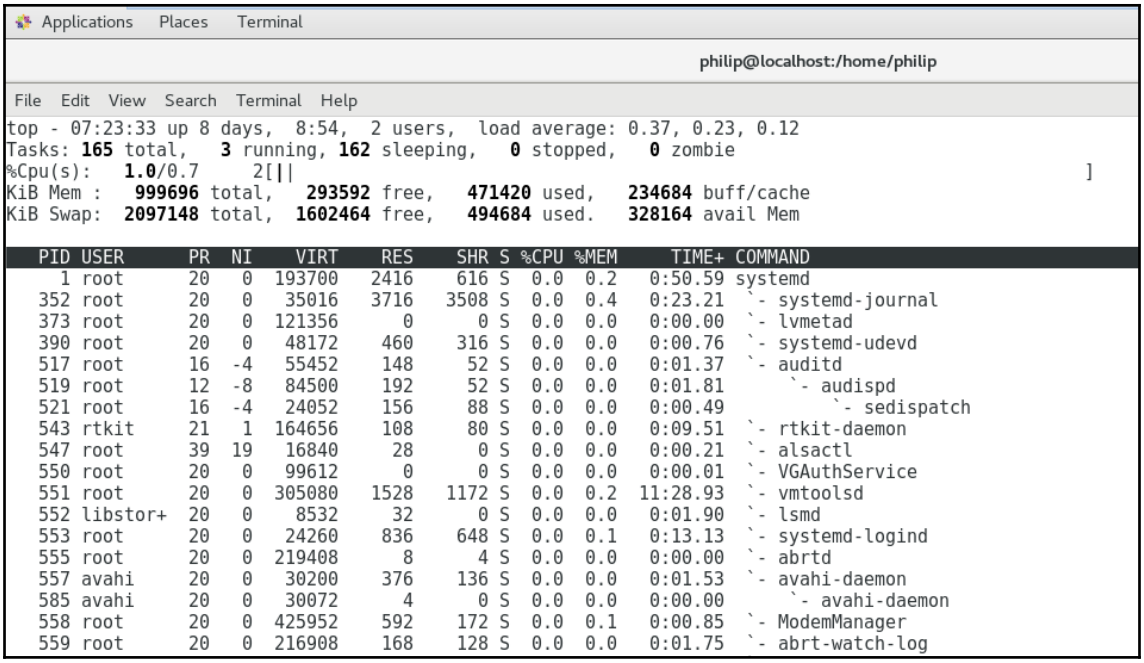

root@ubuntu: /home/philip
7:13 AM
top - 07:10:05 up 1:13, 3 users, load average: 0.02, 0.04, 0.08
Tasks: 253 total, 1 running, 252 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.7 us, 0.0 sy, 0.0 ni, 98.3 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 997624 total, 73852 free, 728600 used, 195172 buff/cache
KiB Swap: 1046524 total, 774268 free, 272256 used. 81272 avail Mem
Change delay from 3.0 to 2
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
10563 philip 20 0 545368 24404 12056 S 0.7 2.4 0:02.55 /usr/bin/vmtoolsd -n vmusr --blockFd 3
10233 philip 20 0 364464 24508 8636 S 0.3 2.5 0:07.28 /usr/lib/xorg/Xorg vt2 -displayfd 3 -auth /run+
10436 philip 20 0 42888 2088 1884 S 0.3 0.2 0:00.03 /usr/bin/dbus-daemon --config-file=/etc/at-spi+
11130 philip 20 0 623220 33872 25460 S 0.3 3.4 0:01.94 /usr/lib/gnome-terminal/gnome-terminal-server
1424 philip 20 0 45336 2108 1760 S 0.0 0.2 0:00.03 /lib/systemd/systemd --user
1426 philip 20 0 145276 188 0 S 0.0 0.0 0:00.00 (sd-pam)
9621 philip 20 0 344860 4204 3392 S 0.0 0.4 0:00.36 ibus-daemon --xim --panel disable
9624 philip 20 0 264256 3772 3484 S 0.0 0.4 0:00.01 /usr/lib/ibus/ibus-dconf
9928 philip 9 -11 434816 4084 2292 S 0.0 0.4 0:00.63 /usr/bin/pulseaudio --start --log-target=syslog
10110 philip 20 0 188388 4064 3756 S 0.0 0.4 0:00.09 /usr/lib/ibus/ibus-engine-simple
10228 philip 20 0 205216 4764 4360 S 0.0 0.5 0:00.04 /usr/bin/gnome-keyring-daemon --daemonize --lo+
10231 philip 20 0 193388 3420 3420 S 0.0 0.3 0:00.00 /usr/lib/gdm3/gdm-x-session --run-script gnome+
10238 philip 20 0 42764 1808 1808 S 0.0 0.2 0:00.02 dbus-daemon --print-address 4 --session
10241 philip 20 0 46480 3468 2588 S 0.0 0.3 0:00.22 /sbin/upstart --user

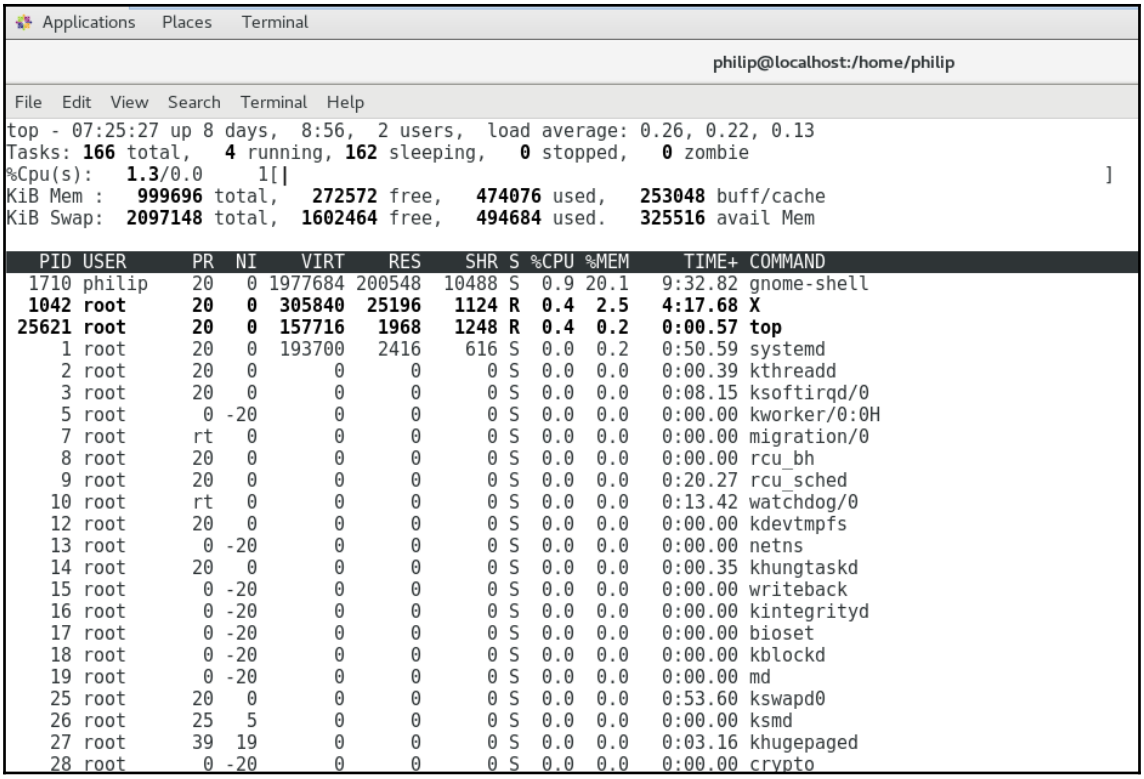

root@ubuntu: /home/philip
Help for Interactive Commands - procps-ng version 3.3.10
Window 1:Def: Cumulative mode Off. System: Delay 2.0 secs; Secure mode Off.
Z,B,E,e Global: 'Z' colors; 'B' bold; 'E'/'e' summary/task memory scale
l,t,m Toggle Summary: 'l' load avg; 't' task/cpu stats; 'm' memory info
0,1,2,3,I Toggle: '0' zeros; '1/2/3' cpus or numa node views; 'I' Irix mode
f,F,X Fields: 'f'/'F' add/remove/order/sort; 'X' increase fixed-width
L,&,<,> . Locate: 'L'/'&' find/again; Move sort column: '<'/'>' left/right
R,H,V,J . Toggle: 'R' Sort; 'H' Threads; 'V' Forest view; 'J' Num justify
c,i,S,j . Toggle: 'c' Cmd name/line; 'i' Idle; 'S' Time; 'j' Str justify
x,y . Toggle highlights: 'x' sort field; 'y' running tasks
z,b . Toggle: 'z' color/mono; 'b' bold/reverse (only if 'x' or 'y')
u,U,o,O . Filter by: 'u'/'U' effective/any user; 'o'/'O' other criteria
n,#,^O . Set: 'n'/'#' max tasks displayed; Show: Ctrl+'O' other filter(s)
C,... . Toggle scroll coordinates msg for: up,down,left,right,home,end
k,r Manipulate tasks: 'k' kill; 'r' renice
d or s Set update interval
W,Y Write configuration file 'W'; Inspect other output 'Y'
q Quit
(commands shown with '.' require a visible task display window)
Press 'h' or '?' for help with Windows,
Type 'q' or <Esc> to continue

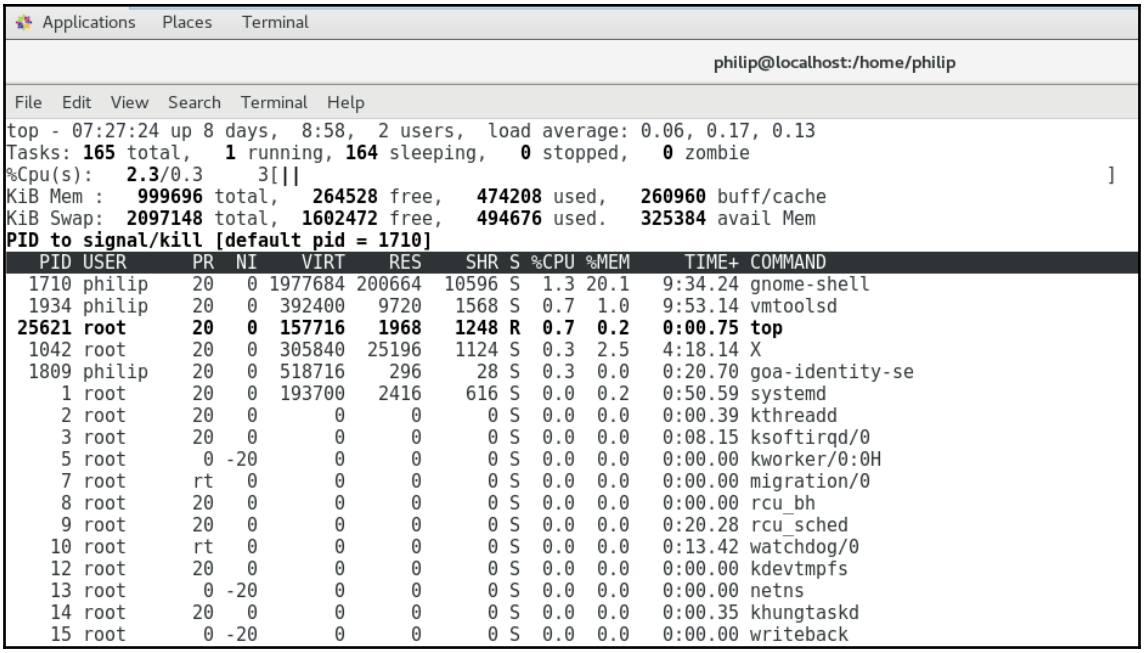

root@ubuntu: /home/philip
7:17 AM
top - 07:17:52 up 1:21, 3 users, load average: 0.00, 0.01, 0.04
Tasks: 254 total, 1 running, 253 sleeping, 0 stopped, 0 zombie
%Cpu(s): 3.9 us, 1.0 sy, 0.0 ni, 95.1 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 91.0/997624
KiB Swap: 26.0/1046524
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
10233 philip 20 0 364464 24508 8636 S 2.9 2.5 0:07.84 /usr/lib/xorg/Xorg vt2 -displayfd 3 -auth /run+
10676 philip 20 0 1227748 84576 29944 S 1.0 8.5 0:10.50 compiz
11130 philip 20 0 623220 33872 25460 S 1.0 3.4 0:02.20 /usr/lib/gnome-terminal/gnome-terminal-server
1424 philip 20 0 45336 2108 1760 S 0.0 0.2 0:00.03 /lib/systemd/systemd --user
1426 philip 20 0 145276 188 0 S 0.0 0.0 0:00.00 (sd-pam)
9621 philip 20 0 344860 4204 3392 S 0.0 0.4 0:00.39 ibus-daemon --xim --panel disable
9624 philip 20 0 264256 3772 3484 S 0.0 0.4 0:00.01 /usr/lib/ibus/ibus-dconf
9928 philip 9 -11 434816 4084 2292 S 0.0 0.4 0:00.63 /usr/bin/pulseaudio --start --log-target=syslog
10110 philip 20 0 188388 4064 3756 S 0.0 0.4 0:00.11 /usr/lib/ibus/ibus-engine-simple
10228 philip 20 0 205216 4764 4360 S 0.0 0.5 0:00.04 /usr/bin/gnome-keyring-daemon --daemonize --lo+
10231 philip 20 0 193388 3420 3420 S 0.0 0.3 0:00.00 /usr/lib/gdm3/gdm-x-session --run-script gnome+
10238 philip 20 0 42764 1808 1808 S 0.0 0.2 0:00.02 dbus-daemon --print-address 4 --session
10241 philip 20 0 46480 3468 2588 S 0.0 0.3 0:00.22 /sbin/upstart --user
10335 philip 20 0 32860 68 0 S 0.0 0.0 0:00.01 upstart-udev-bridge --daemon --user
10336 philip 20 0 43824 3484 2276 S 0.0 0.3 0:00.56 dbus-daemon --fork --session --address=unix:ab+
10348 philip 20 0 86344 4756 4520 S 0.0 0.5 0:00.02 /usr/lib/x86_64-linux-gnu/hud/window-stack-bri+


root@ubuntu: /home/philip
7:19 AM
top - 07:19:20 up 1:22, 3 users, load average: 0.00, 0.00, 0.03
Tasks: 254 total, 2 running, 252 sleeping, 0 stopped, 0 zombie
%Cpu(s): 3.8 us, 1.9 sy, 0.0 ni, 94.2 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 91.0/997624
KiB Swap: 26.0/1046524
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
10233 philip 20 0 364464 24508 8636 S 1.9 2.5 0:08.16 /usr/lib/xorg/Xorg vt2 -displayfd 3 -auth /run+
11130 philip 20 0 623220 33872 25460 S 1.9 3.4 0:02.36 /usr/lib/gnome-terminal/gnome-terminal-server
1424 philip 20 0 45336 2108 1760 S 0.0 0.2 0:00.03 /lib/systemd/systemd --user
1426 philip 20 0 145276 188 0 S 0.0 0.0 0:00.00 (sd-pam)
9621 philip 20 0 344860 4204 3392 S 0.0 0.4 0:00.41 ibus-daemon --xim --panel disable
9624 philip 20 0 264256 3772 3484 S 0.0 0.4 0:00.01 /usr/lib/ibus/ibus-dconf
9928 philip 9 -11 434816 4084 2292 S 0.0 0.4 0:00.63 /usr/bin/pulseaudio --start --log-target=syslog
10110 philip 20 0 188388 4064 3756 S 0.0 0.4 0:00.11 /usr/lib/ibus/ibus-engine-simple
10228 philip 20 0 205216 4764 4360 S 0.0 0.5 0:00.04 /usr/bin/gnome-keyring-daemon --daemonize --lo+
10231 philip 20 0 193388 3420 3420 S 0.0 0.3 0:00.00 /usr/lib/gdm3/gdm-x-session --run-script gnome+
10238 philip 20 0 42764 1808 1808 S 0.0 0.2 0:00.02 dbus-daemon --print-address 4 --session
10241 philip 20 0 46480 3468 2588 S 0.0 0.3 0:00.22 /sbin/upstart --user
10335 philip 20 0 32860 68 0 S 0.0 0.0 0:00.01 upstart-udev-bridge --daemon --user
10336 philip 20 0 43824 3484 2276 S 0.0 0.3 0:00.56 dbus-daemon --fork --session --address=unix:ab+
10348 philip 20 0 86344 4756 4520 S 0.0 0.5 0:00.02 /usr/lib/x86_64-linux-gnu/hud/window-stack-bri+
10387 philip 20 0 646164 16808 12028 S 0.0 1.7 0:00.35 /usr/lib/x86_64-linux-gnu/bamf/bamfdaemon
10399 philip 20 0 32792 992 828 S 0.0 0.1 0:00.05 upstart-dbus-bridge --daemon --session --user +
10405 philip 20 0 274528 3608 3112 S 0.0 0.4 0:00.03 /usr/lib/gvfs/gvfsd

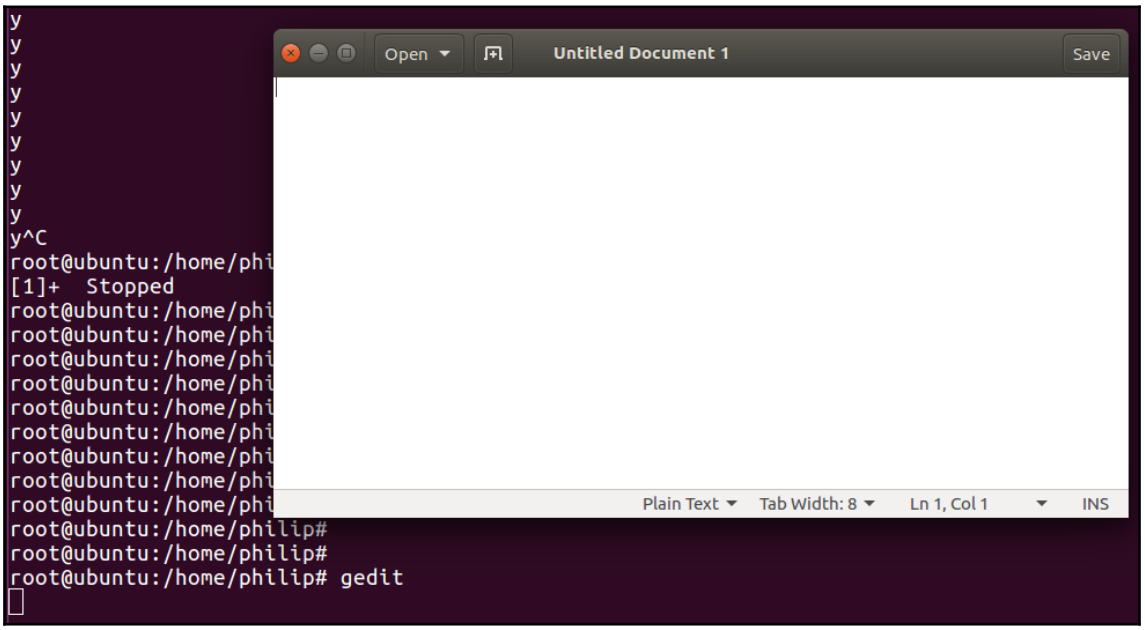

Applications
Places
Terminal
philip@localhost:~
File
Edit
View
Search
Terminal
Help
top - 13:21:09 up 5 days, 12:14, 2 users, load average: 0.19, 0.13, 0.08
Tasks: 164 total, 4 running, 160 sleeping, 0 stopped, 0 zombie
%Cpu(s): 2.5/1.0 4[
KiB Mem : 999696 total, 73252 free, 641584 used, 284860 buff/cache
KiB Swap: 2097148 total, 1856536 free, 240612 used. 129180 avail Mem
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
1710 philip 20 0 1943720 178288 16624 S 1.0 17.8 6:17.98 gnome-shell
1926 philip 20 0 1048800 70932 3204 S 0.5 7.1 0:23.02 gnome-software
1934 philip 20 0 389192 6308 1952 S 0.5 0.6 5:26.99 vmtoolsd
103541 philip 20 0 157716 2260 1544 R 0.5 0.2 0:02.29 top

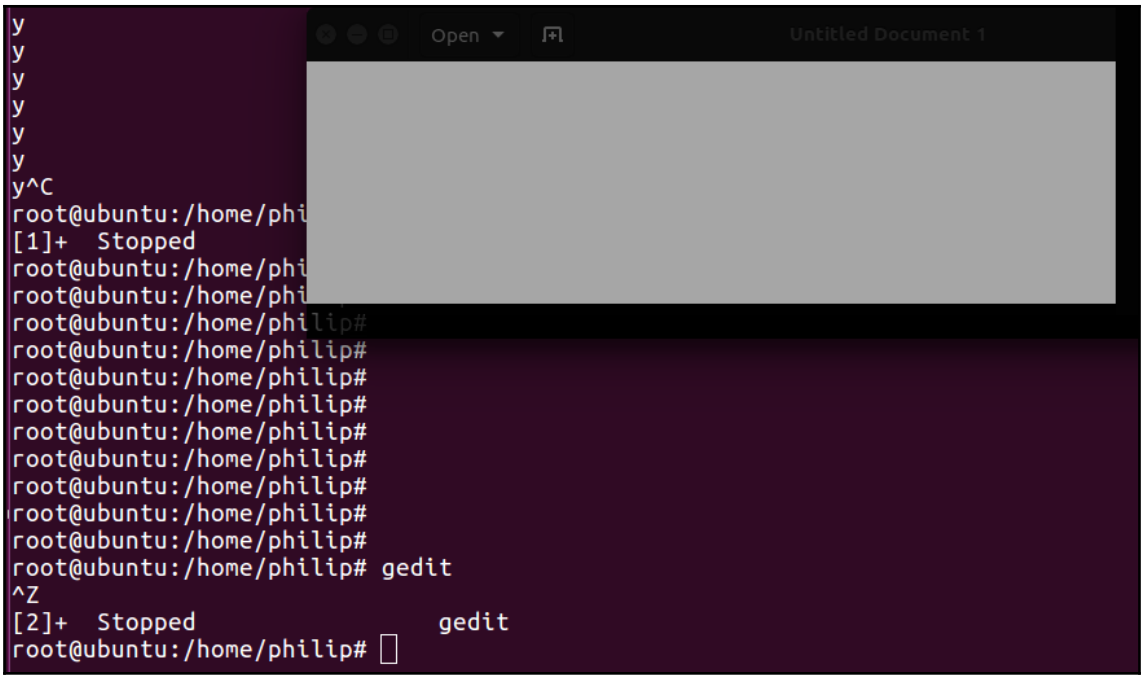

Applications Places Terminal
philip@localhost:/home/philip
File Edit View Search Terminal Help
top - 07:23:33 up 8 days, 8:54, 2 users, load average: 0.37, 0.23, 0.12
Tasks: 165 total, 3 running, 162 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.0/0.7 2[||]
KiB Mem : 999696 total, 293592 free, 471420 used, 234684 buff/cache
KiB Swap: 2097148 total, 1602464 free, 494684 used. 328164 avail Mem
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
1 root 20 0 193700 2416 616 S 0.0 0.2 0:50.59 systemd
352 root 20 0 35016 3716 3508 S 0.0 0.4 0:23.21 `- systemd-journal
373 root 20 0 121356 0 0 S 0.0 0.0 0:00.00 `- lvmetad
390 root 20 0 48172 460 316 S 0.0 0.0 0:00.76 `- systemd-udevd
517 root 16 -4 55452 148 52 S 0.0 0.0 0:01.37 `- auditd
519 root 12 -8 84500 192 52 S 0.0 0.0 0:01.81 `- audispd
521 root 16 -4 24052 156 88 S 0.0 0.0 0:00.49 `- sedispatch
543 rtkit 21 1 164656 108 80 S 0.0 0.0 0:09.51 `- rtkit-daemon
547 root 39 19 16840 28 0 S 0.0 0.0 0:00.21 `- alsactl
550 root 20 0 99612 0 0 S 0.0 0.0 0:00.01 `- VGAuthService
551 root 20 0 305080 1528 1172 S 0.0 0.2 11:28.93 `- vmtoolsd
552 libstor+ 20 0 8532 32 0 S 0.0 0.0 0:01.90 `- lsmd
553 root 20 0 24260 836 648 S 0.0 0.1 0:13.13 `- systemd-logind
555 root 20 0 219408 8 4 S 0.0 0.0 0:00.00 `- abrtd
557 avahi 20 0 30200 376 136 S 0.0 0.0 0:01.53 `- avahi-daemon
585 avahi 20 0 30072 4 0 S 0.0 0.0 0:00.00 `- avahi-daemon
558 root 20 0 425952 592 172 S 0.0 0.1 0:00.85 `- ModemManager
559 root 20 0 216908 168 128 S 0.0 0.0 0:01.75 `- abrt-watch-log

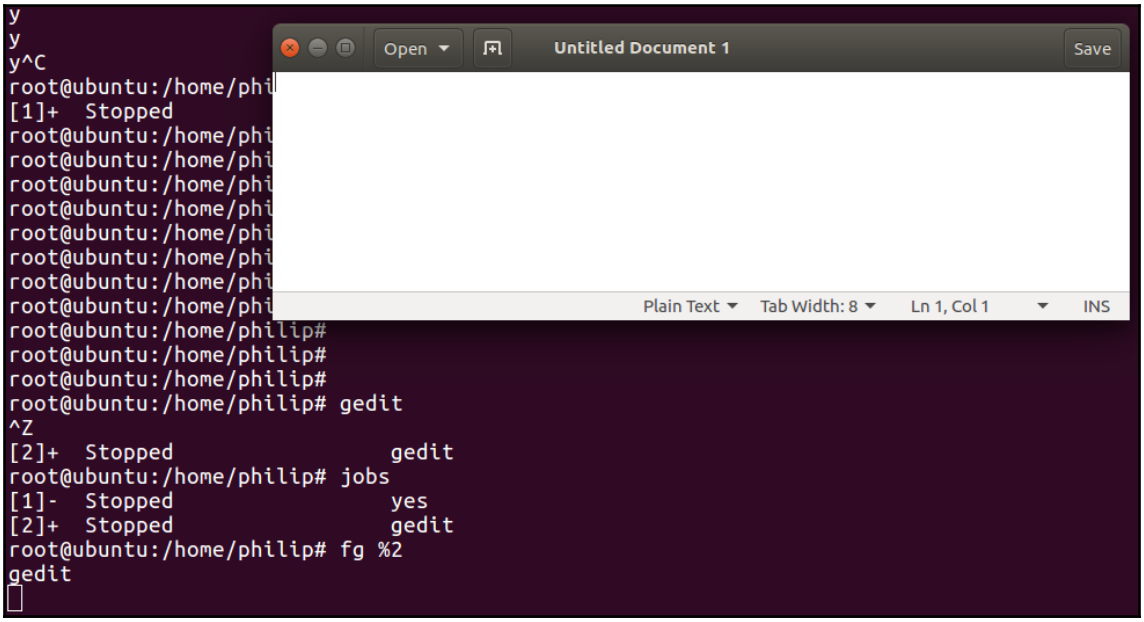

Applications Places Terminal
philip@localhost:/home/philip
File Edit View Search Terminal Help
top - 07:25:27 up 8 days, 8:56, 2 users, load average: 0.26, 0.22, 0.13
Tasks: 166 total, 4 running, 162 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.3/0.0 1[|
KiB Mem : 999696 total, 272572 free, 474076 used, 253048 buff/cache
KiB Swap: 2097148 total, 1602464 free, 494684 used. 325516 avail Mem
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
1710 philip 20 0 1977684 200548 10488 S 0.9 20.1 9:32.82 gnome-shell
1042 root 20 0 305840 25196 1124 R 0.4 2.5 4:17.68 X
25621 root 20 0 157716 1968 1248 R 0.4 0.2 0:00.57 top
1 root 20 0 193700 2416 616 S 0.0 0.2 0:50.59 systemd
2 root 20 0 0 0 0 S 0.0 0.0 0:00.39 kthreadd
3 root 20 0 0 0 0 S 0.0 0.0 0:08.15 ksoftirqd/0
5 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 kworker/0:0H
7 root rt 0 0 0 0 S 0.0 0.0 0:00.00 migration/0
8 root 20 0 0 0 0 S 0.0 0.0 0:00.00 rcu_bh
9 root 20 0 0 0 0 S 0.0 0.0 0:20.27 rcu_sched
10 root rt 0 0 0 0 S 0.0 0.0 0:13.42 watchdog/0
12 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kdevtmpfs
13 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 netns
14 root 20 0 0 0 0 S 0.0 0.0 0:00.35 khungtaskd
15 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 writeback
16 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 kintegrityd
17 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 bioset
18 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 kblockd
19 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 md
25 root 20 0 0 0 0 S 0.0 0.0 0:53.60 kswapd0
26 root 25 5 0 0 0 S 0.0 0.0 0:00.00 ksmd
27 root 39 19 0 0 0 S 0.0 0.0 0:03.16 khugepaged
28 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 crypto

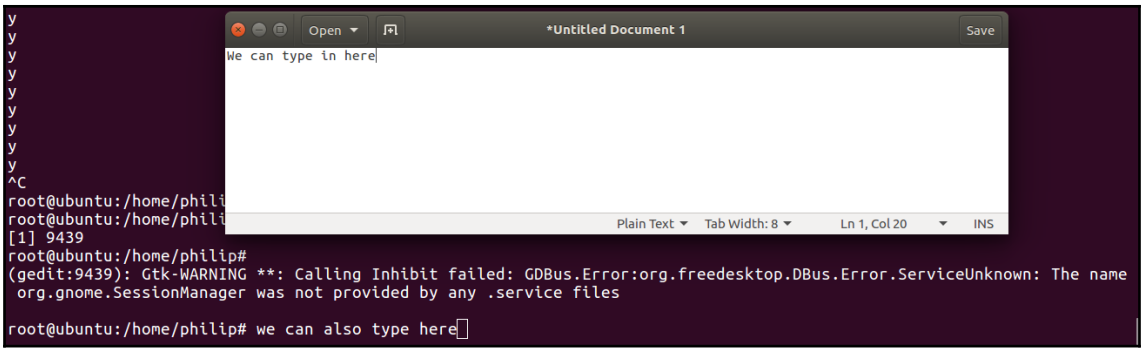

Applications Places Terminal
philip@localhost:/home/philip
File Edit View Search Terminal Help
top - 07:27:24 up 8 days, 8:58, 2 users, load average: 0.06, 0.17, 0.13
Tasks: 165 total, 1 running, 164 sleeping, 0 stopped, 0 zombie
%Cpu(s): 2.3/0.3 3[||
KiB Mem : 999696 total, 264528 free, 474208 used, 260960 buff/cache
KiB Swap: 2097148 total, 1602472 free, 494676 used. 325384 avail Mem
PID to signal/kill [default pid = 1710]
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
1710 philip 20 0 1977684 200664 10596 S 1.3 20.1 9:34.24 gnome-shell
1934 philip 20 0 392400 9720 1568 S 0.7 1.0 9:53.14 vmtoolsd
25621 root 20 0 157716 1968 1248 R 0.7 0.2 0:00.75 top
1042 root 20 0 305840 25196 1124 S 0.3 2.5 4:18.14 X
1809 philip 20 0 518716 296 28 S 0.3 0.0 0:20.70 goa-identity-se
1 root 20 0 193700 2416 616 S 0.0 0.2 0:50.59 systemd
2 root 20 0 0 0 0 S 0.0 0.0 0:00.39 kthreadd
3 root 20 0 0 0 0 S 0.0 0.0 0:08.15 ksoftirqd/0
5 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 kworker/0:0H
7 root rt 0 0 0 0 S 0.0 0.0 0:00.00 migration/0
8 root 20 0 0 0 0 S 0.0 0.0 0:00.00 rcu_bh
9 root 20 0 0 0 0 S 0.0 0.0 0:20.28 rcu_sched
10 root rt 0 0 0 0 S 0.0 0.0 0:13.42 watchdog/0
12 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kdevtmpfs
13 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 netns
14 root 20 0 0 0 0 S 0.0 0.0 0:00.35 khungtaskd
15 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 writeback

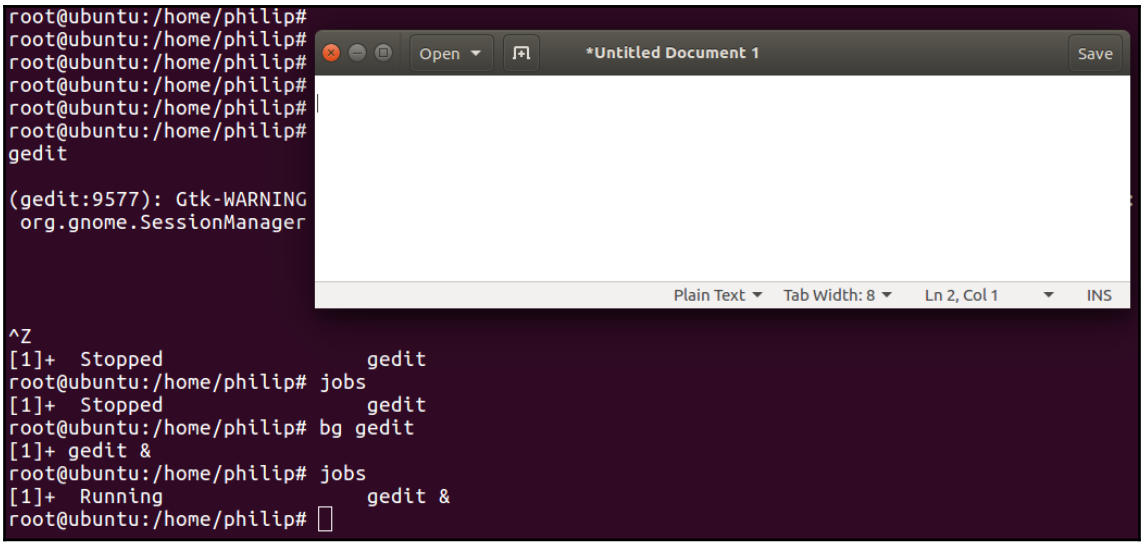
Chapter 10: Modifying Process Execution

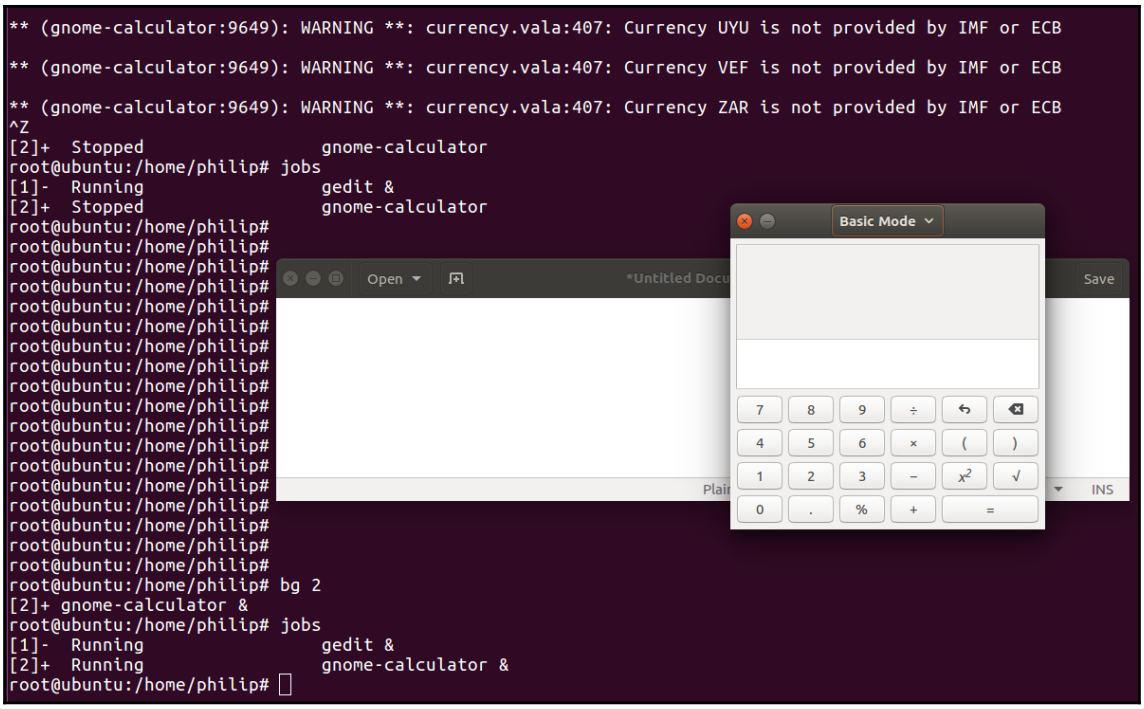



y
y
y
y
y
y
y^C
root@ubuntu:/home/phi
[1]+ Stopped
root@ubuntu:/home/phi
root@ubuntu:/home/phi
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip# gedit
^Z
[2]+ Stopped   gedit
root@ubuntu:/home/philip#
Open
Untitled Document 1

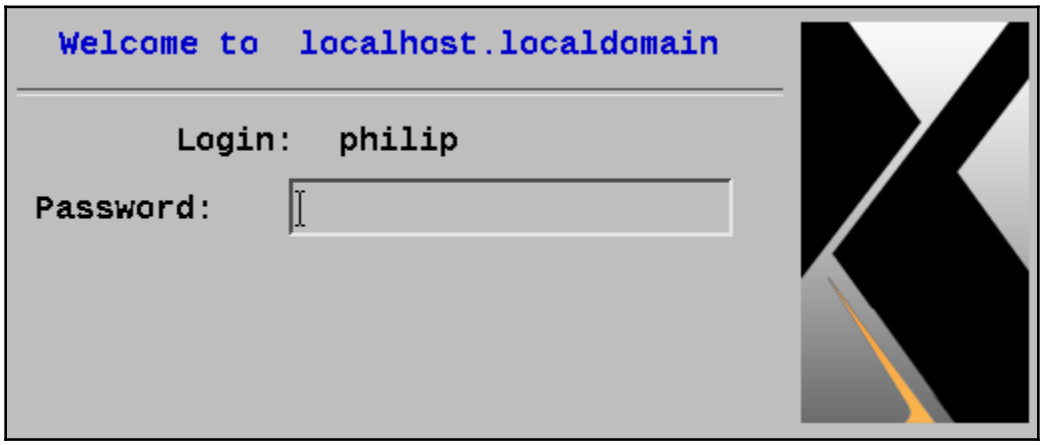

y
y
y^C
root@ubuntu:/home/phi
[1]+ Stopped
root@ubuntu:/home/phi
root@ubuntu:/home/phi
root@ubuntu:/home/phi
root@ubuntu:/home/phi
root@ubuntu:/home/phi
root@ubuntu:/home/phi
root@ubuntu:/home/phi
root@ubuntu:/home/phi
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip# gedit
^Z
[2]+ Stopped   gedit
root@ubuntu:/home/philip# jobs
[1]- Stopped   yes
[2]+ Stopped   gedit
root@ubuntu:/home/philip# fg %2
gedit
Open
Untitled Document 1
Save
Plain Text
Tab Width: 8
Ln 1, Col 1
INS

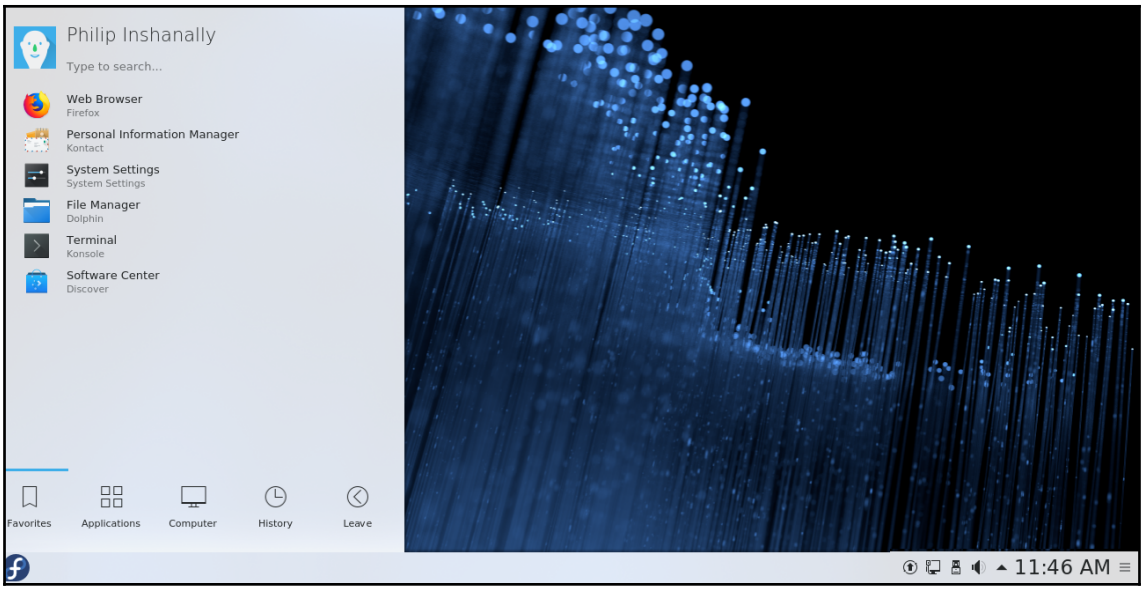

y
y
y
y
y
y
y
y
y
^C
root@ubuntu:/home/phili
root@ubuntu:/home/phili
[1] 9439
root@ubuntu:/home/philip#
(gedit:9439): Gtk-WARNING **: Calling Inhibit failed: GDBus.Error:org.freedesktop.DBus.Error.ServiceUnknown: The name
org.gnome.SessionManager was not provided by any .service files
root@ubuntu:/home/philip# we can also type here
Open
*Untitled Document 1
Save
We can type in here
Plain Text
Tab Width: 8
Ln 1, Col 20
INS

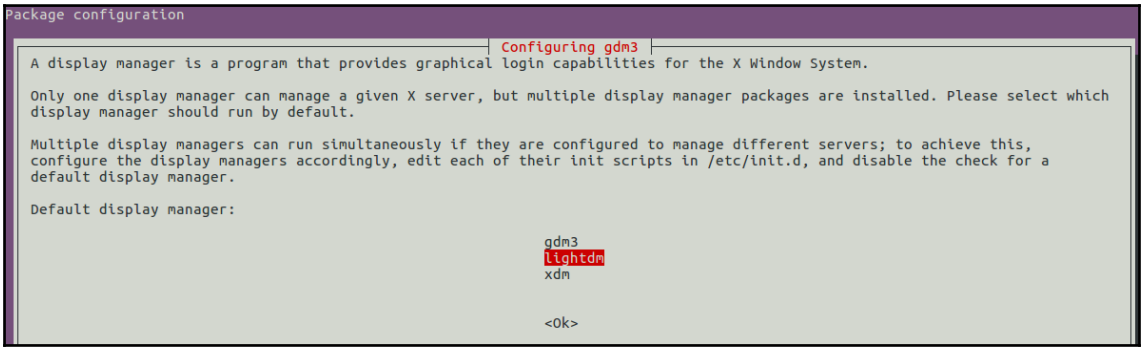

root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
gedit
(gedit:9577): Gtk-WARNING
org.gnome.SessionManager
Open
*Untitled Document 1
Save
Plain Text
Tab Width: 8
Ln 2, Col 1
INS
^Z
[1]+ Stopped gedit
root@ubuntu:/home/philip# jobs
[1]+ Stopped gedit
root@ubuntu:/home/philip# bg gedit
[1]+ gedit &
root@ubuntu:/home/philip# jobs
[1]+ Running gedit &
root@ubuntu:/home/philip#

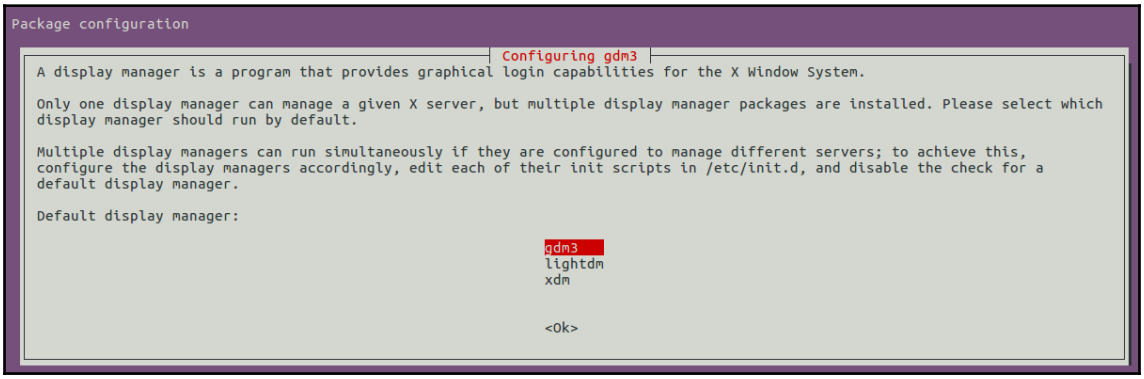

** (gnome-calculator:9649): WARNING **: currency.vala:407: Currency UYU is not provided by IMF or ECB
** (gnome-calculator:9649): WARNING **: currency.vala:407: Currency VEF is not provided by IMF or ECB
** (gnome-calculator:9649): WARNING **: currency.vala:407: Currency ZAR is not provided by IMF or ECB
^Z
[2]+ Stopped gnome-calculator
root@ubuntu:/home/philip# jobs
[1]- Running gedit &
[2]+ Stopped gnome-calculator
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip# bg 2
[2]+ gnome-calculator &
root@ubuntu:/home/philip# jobs
[1]- Running gedit &
[2]+ Running gnome-calculator &
root@ubuntu:/home/philip#
Open
*Untitled Docu
Save
Plain
INS
Basic Mode
7 8 9 ÷
4 5 6 × ( )
1 2 3 − x² √
0 . % + =

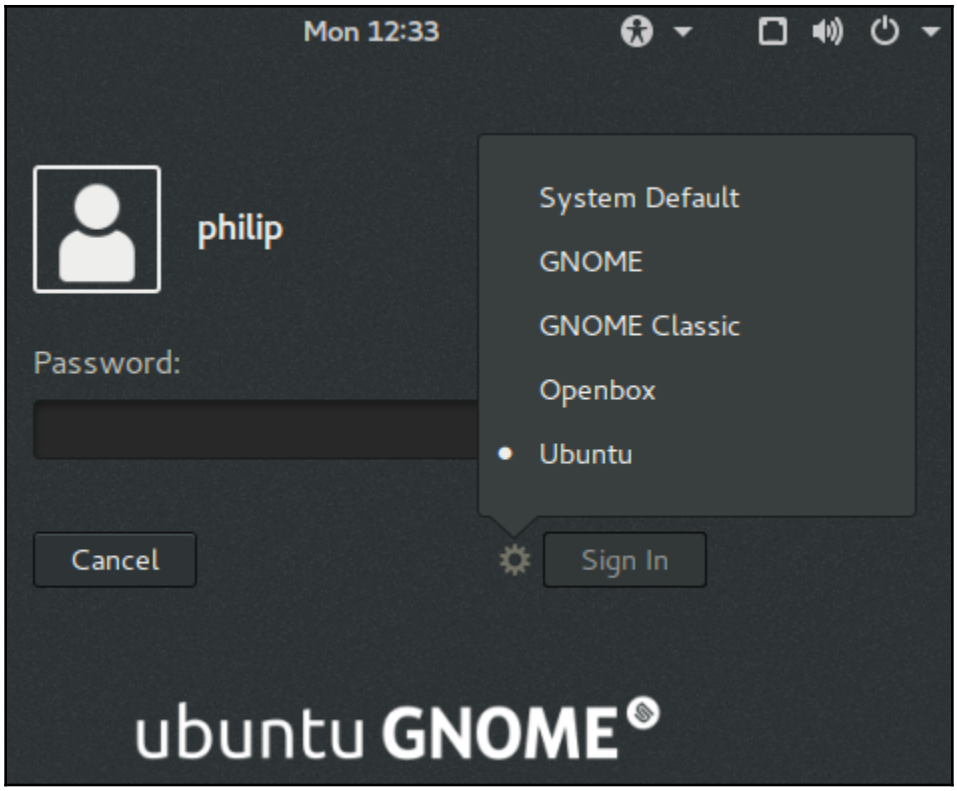
Chapter 11: Display Managers

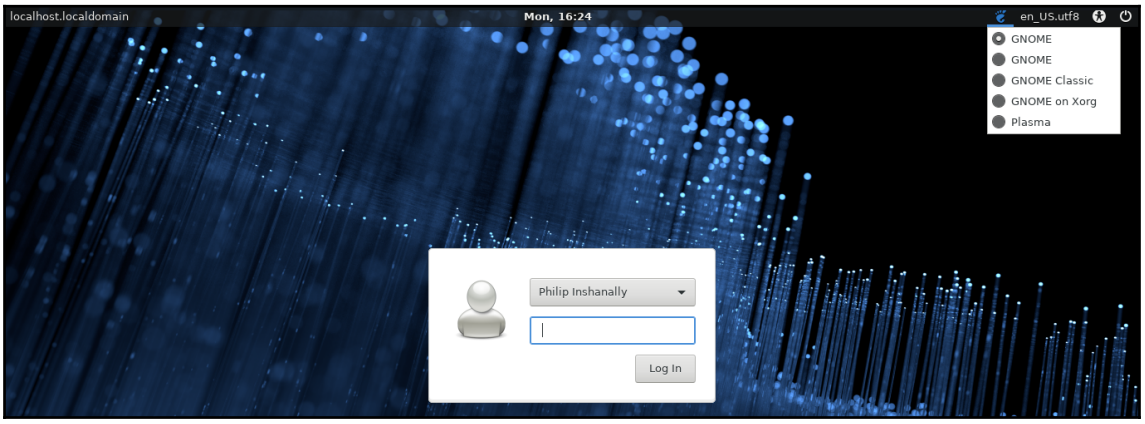



Philip Inshanally
Type to search...
Web Browser
Firefox
Personal Information Manager
Kontact
System Settings
System Settings
File Manager
Dolphin
Terminal
Konsole
Software Center
Discover
Favorites
Applications
Computer
History
Leave
11:46 AM

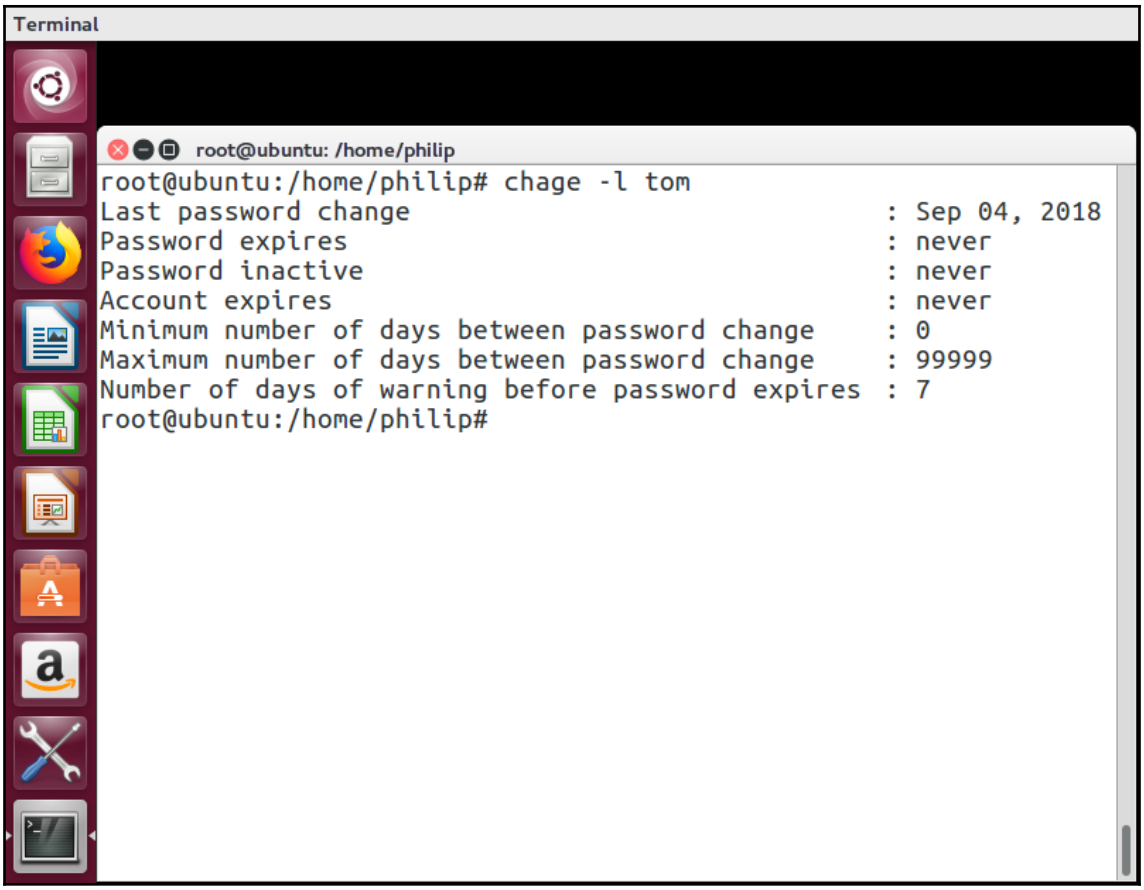

Package configuration
Configuring gdm3
A display manager is a program that provides graphical login capabilities for the X Window System.
Only one display manager can manage a given X server, but multiple display manager packages are installed. Please select which display manager should run by default.
Multiple display managers can run simultaneously if they are configured to manage different servers; to achieve this, configure the display managers accordingly, edit each of their init scripts in /etc/init.d, and disable the check for a default display manager.
Default display manager:
gdm3
lightdm
xdm
<Ok>

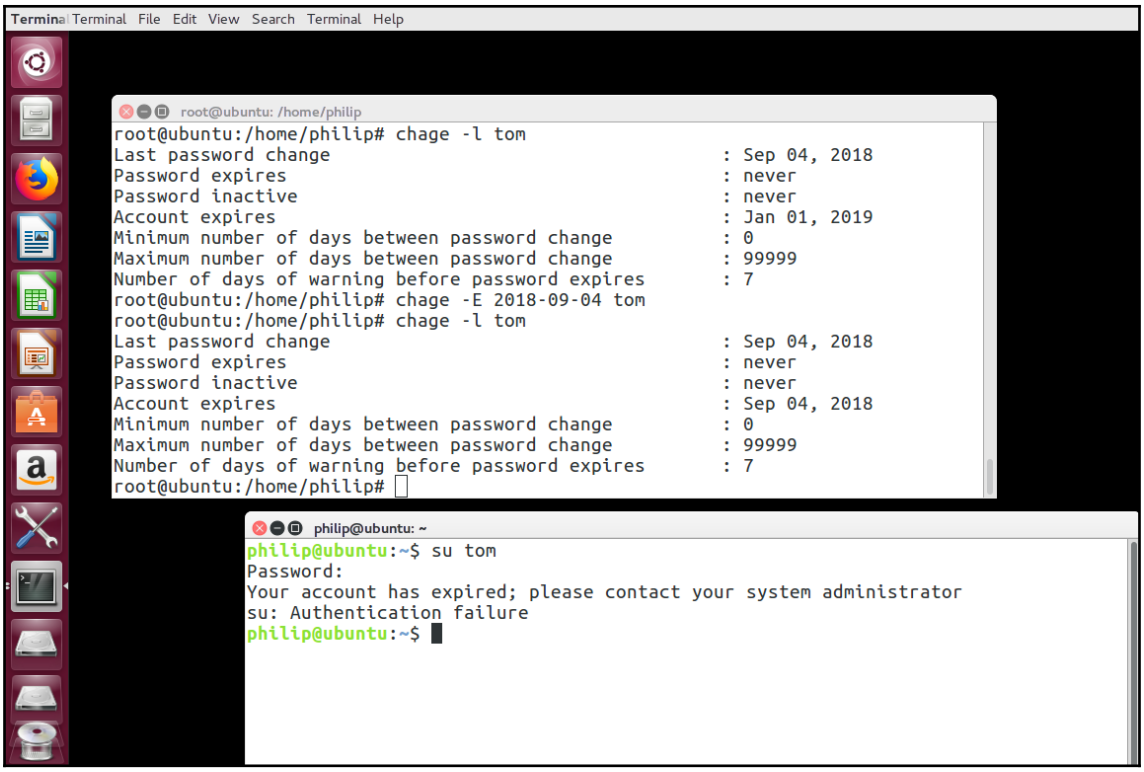

Package configuration
Configuring gdm3
A display manager is a program that provides graphical login capabilities for the X Window System.
Only one display manager can manage a given X server, but multiple display manager packages are installed. Please select which display manager should run by default.
Multiple display managers can run simultaneously if they are configured to manage different servers; to achieve this, configure the display managers accordingly, edit each of their init scripts in /etc/init.d, and disable the check for a default display manager.
Default display manager:
gdm3
lightdm
xdm
<Ok>

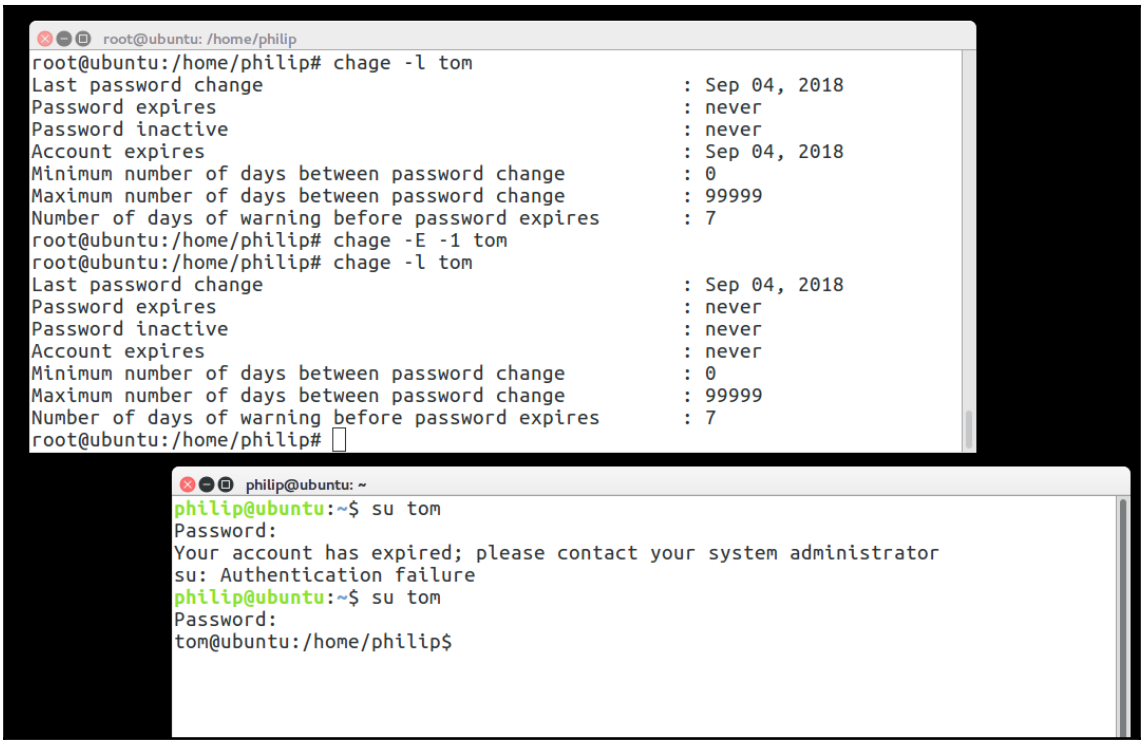

Mon 12:33
philip
Password:
System Default
GNOME
GNOME Classic
Openbox
Ubuntu
Cancel
Sign In
ubuntu GNOME

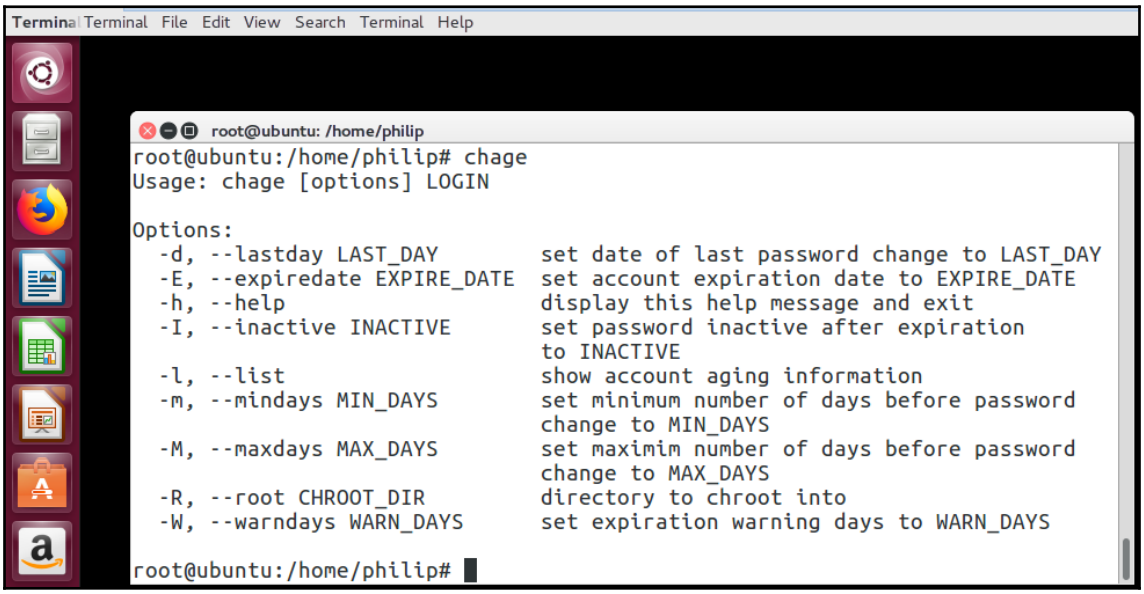

localhost.localdomain
Mon, 16:24
en_US.utf8
GNOME
GNOME
GNOME Classic
GNOME on Xorg
Plasma
Philip Inshanally
Log In

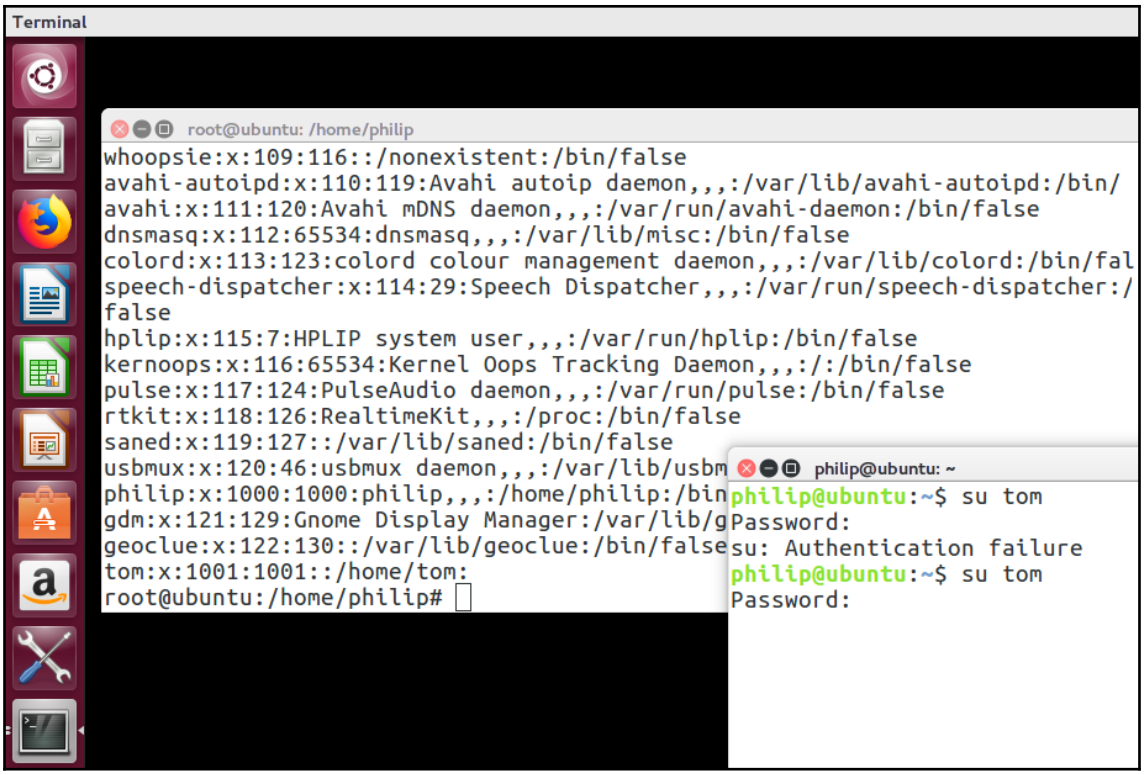
Chapter 12: Managing User and Group Accounts

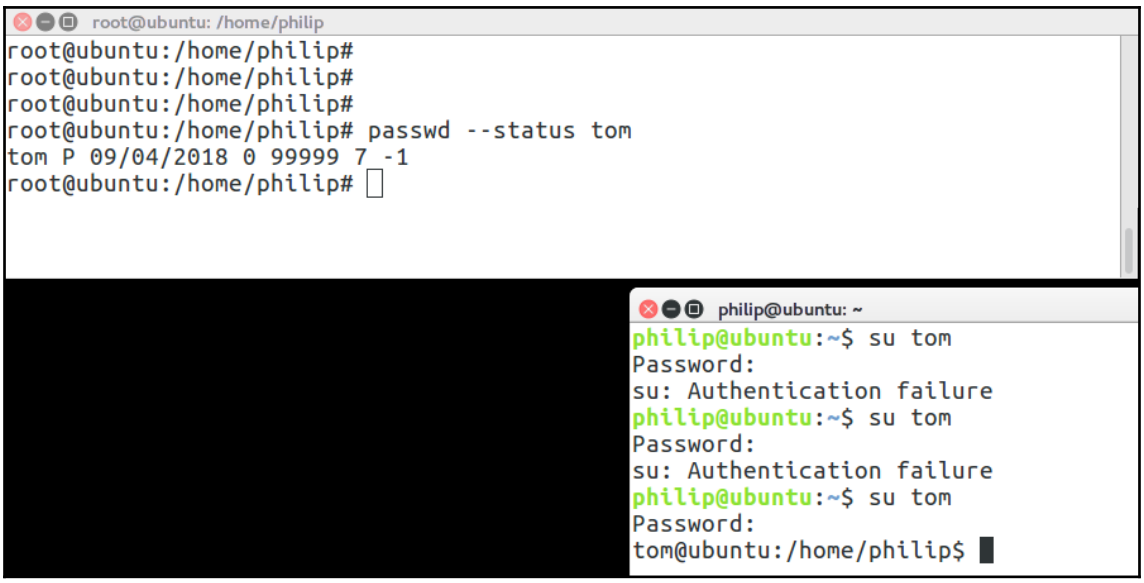

Terminal
root@ubuntu: /home/philip
root@ubuntu:/home/philip# chage -l tom
Last password change : Sep 04, 2018
Password expires : never
Password inactive : never
Account expires : never
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
root@ubuntu:/home/philip#

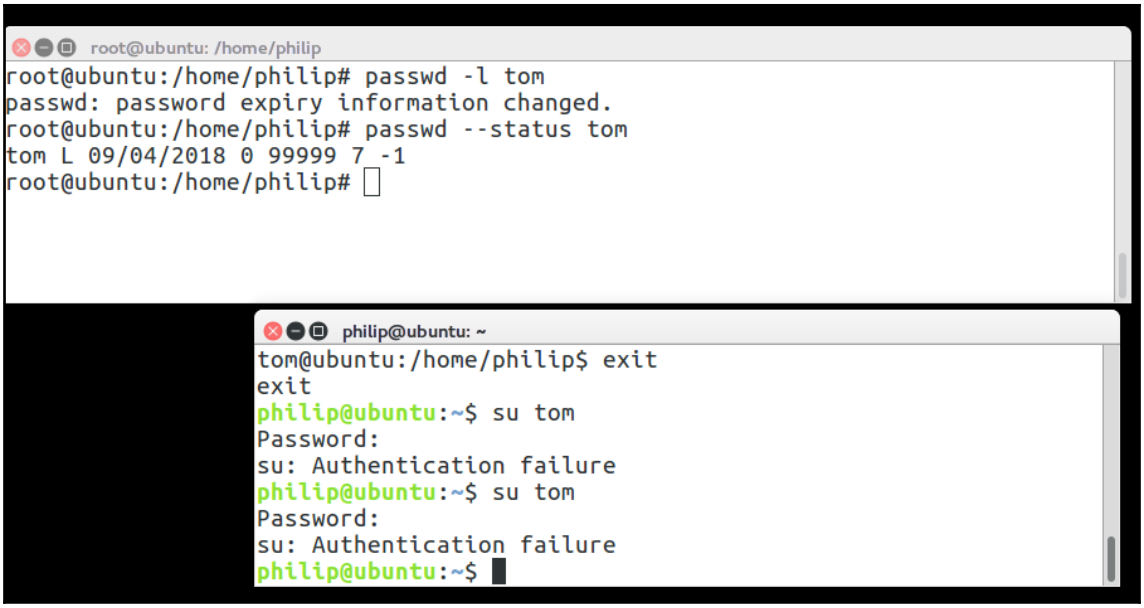

Terminal File Edit View Search Terminal Help
root@ubuntu: /home/philip
root@ubuntu:/home/philip# chage -l tom
Last password change : Sep 04, 2018
Password expires : never
Password inactive : never
Account expires : Jan 01, 2019
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
root@ubuntu:/home/philip# chage -E 2018-09-04 tom
root@ubuntu:/home/philip# chage -l tom
Last password change : Sep 04, 2018
Password expires : never
Password inactive : never
Account expires : Sep 04, 2018
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
root@ubuntu:/home/philip#
philip@ubuntu: ~
philip@ubuntu:~$ su tom
Password:
Your account has expired; please contact your system administrator
su: Authentication failure
philip@ubuntu:~$

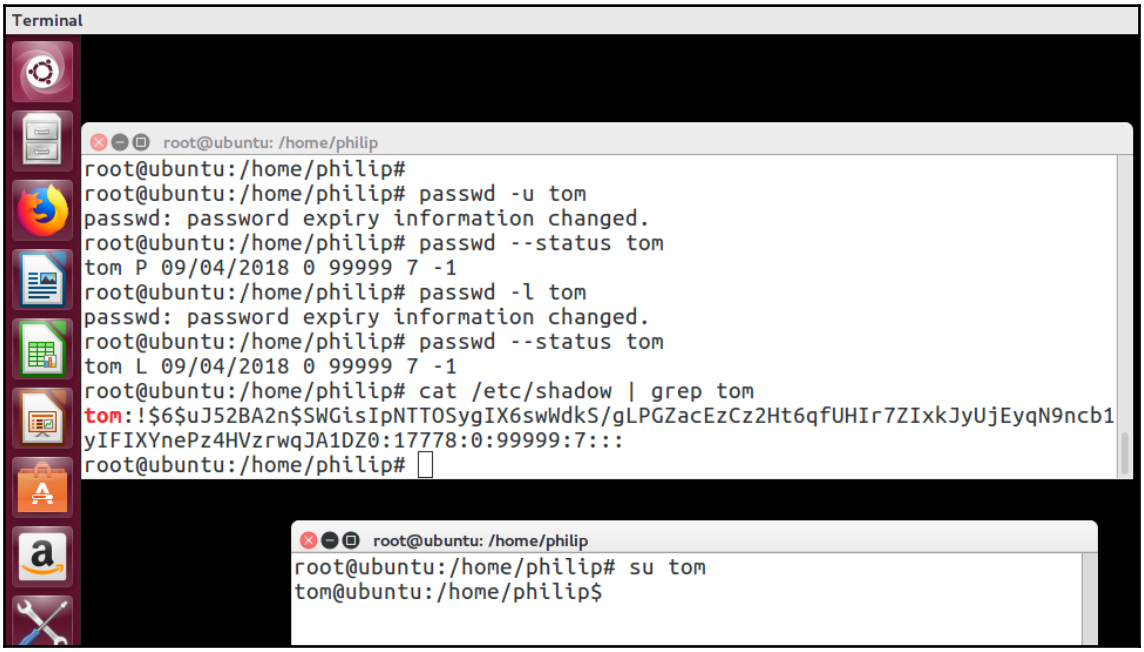

root@ubuntu: /home/philip
root@ubuntu:/home/philip# chage -l tom
Last password change : Sep 04, 2018
Password expires : never
Password inactive : never
Account expires : Sep 04, 2018
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
root@ubuntu:/home/philip# chage -E -1 tom
root@ubuntu:/home/philip# chage -l tom
Last password change : Sep 04, 2018
Password expires : never
Password inactive : never
Account expires : never
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
root@ubuntu:/home/philip#
philip@ubuntu: ~
philip@ubuntu:~$ su tom
Password:
Your account has expired; please contact your system administrator
su: Authentication failure
philip@ubuntu:~$ su tom
Password:
tom@ubuntu:/home/philip$


Terminal File Edit View Search Terminal Help
root@ubuntu: /home/philip
root@ubuntu:/home/philip# chage
Usage: chage [options] LOGIN
Options:
-d, --lastday LAST_DAY set date of last password change to LAST_DAY
-E, --expiredate EXPIRE_DATE set account expiration date to EXPIRE_DATE
-h, --help display this help message and exit
-I, --inactive INACTIVE set password inactive after expiration to INACTIVE
-l, --list show account aging information
-m, --mindays MIN_DAYS set minimum number of days before password change to MIN_DAYS
-M, --maxdays MAX_DAYS set maximim number of days before password change to MAX_DAYS
-R, --root CHROOT_DIR directory to chroot into
-W, --warndays WARN_DAYS set expiration warning days to WARN_DAYS
root@ubuntu:/home/philip#

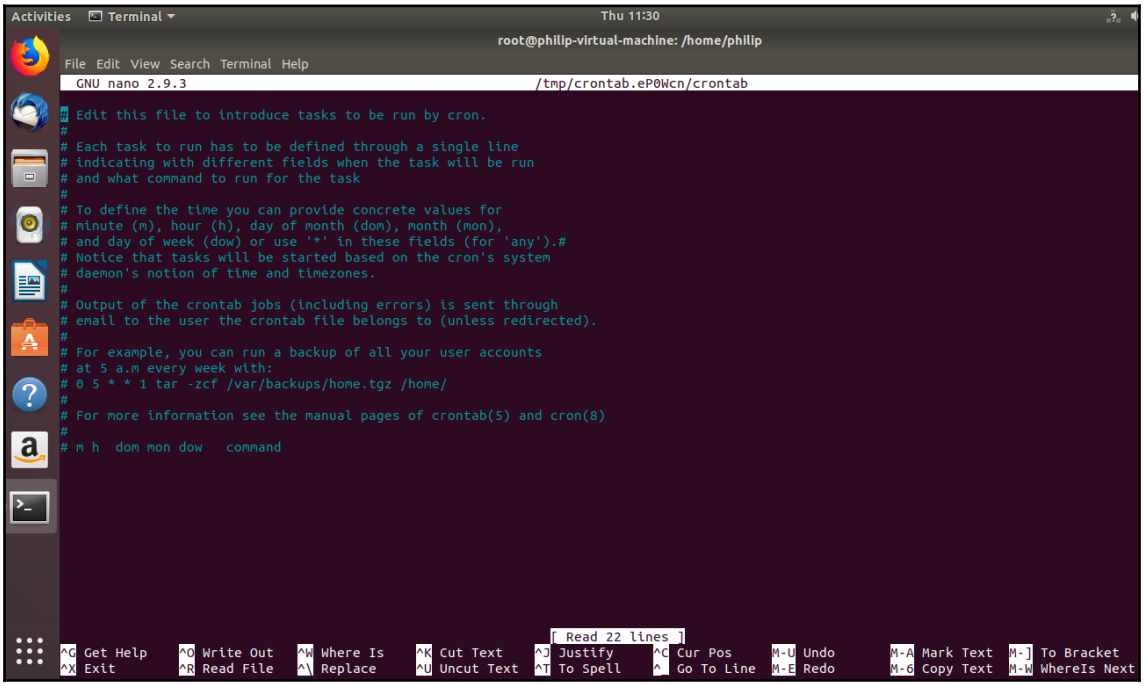

Terminal
root@ubuntu: /home/philip
whoopsie:x:109:116::/nonexistent:/bin/false
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/bin/
avahi:x:111:120:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/bin/false
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/bin/false
colord:x:113:123:colord colour management daemon,,,:/var/lib/colord:/bin/fal
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/var/run/speech-dispatcher:/
false
hplip:x:115:7:HPLIP system user,,,:/var/run/hplip:/bin/false
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/:/bin/false
pulse:x:117:124:PulseAudio daemon,,,:/var/run/pulse:/bin/false
rtkit:x:118:126:RealtimeKit,,,:/proc:/bin/false
saned:x:119:127::/var/lib/saned:/bin/false
usbmux:x:120:46:usbmux daemon,,,:/var/lib/usbm
philip:x:1000:1000:philip,,,:/home/philip:/bin
gdm:x:121:129:Gnome Display Manager:/var/lib/g
geoclue:x:122:130::/var/lib/geoclue:/bin/false
tom:x:1001:1001::/home/tom:
root@ubuntu:/home/philip#
philip@ubuntu: ~
philip@ubuntu:~$ su tom
Password:
su: Authentication failure
philip@ubuntu:~$ su tom
Password:

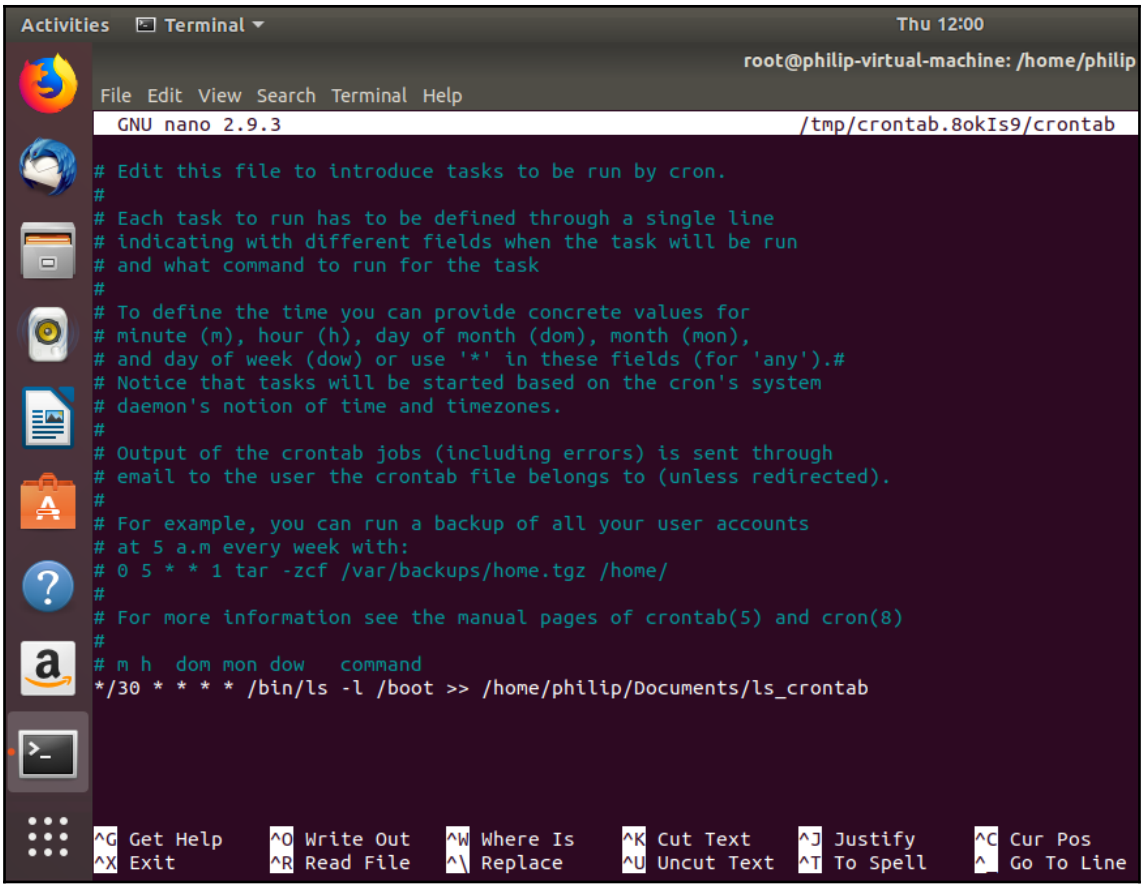

root@ubuntu: /home/philip
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip#
root@ubuntu:/home/philip# passwd --status tom
tom P 09/04/2018 0 99999 7 -1
root@ubuntu:/home/philip#
philip@ubuntu: ~
philip@ubuntu:~$ su tom
Password:
su: Authentication failure
philip@ubuntu:~$ su tom
Password:
su: Authentication failure
philip@ubuntu:~$ su tom
Password:
tom@ubuntu:/home/philip$

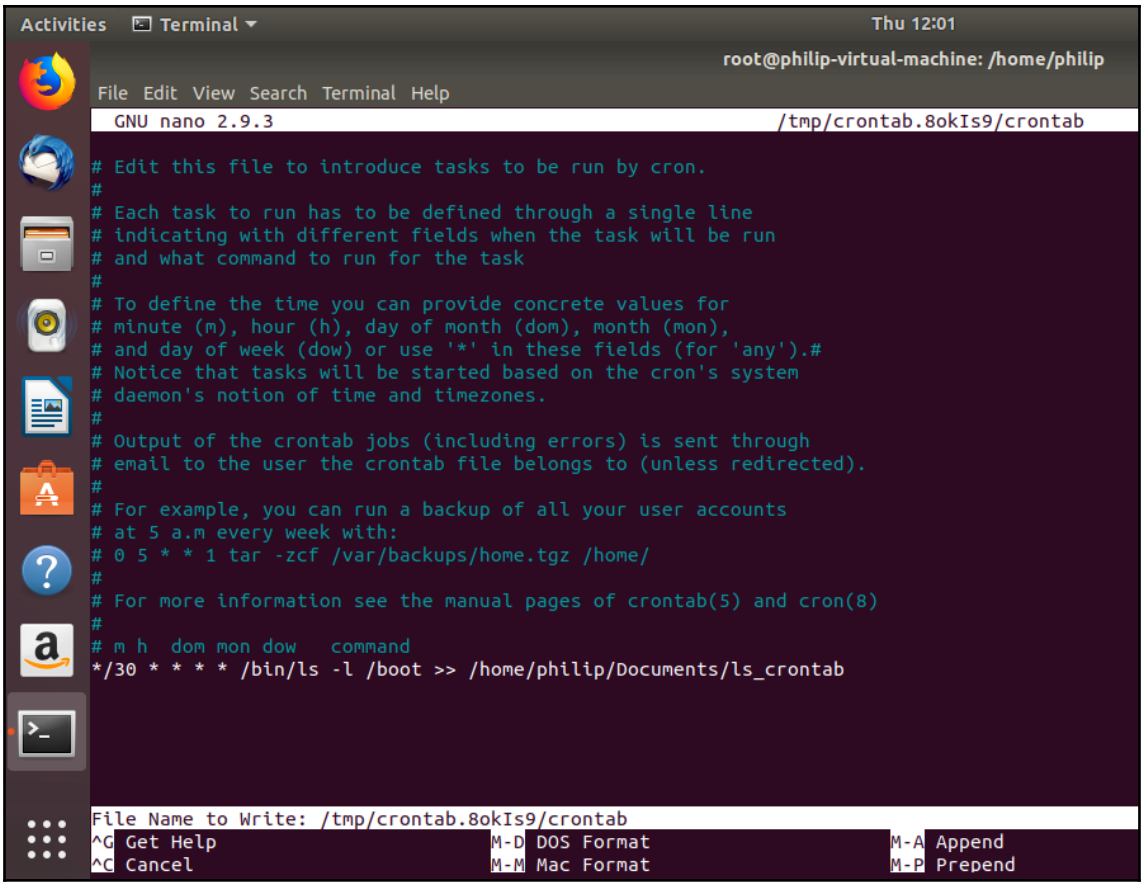

root@ubuntu: /home/philip
root@ubuntu:/home/philip# passwd -l tom
passwd: password expiry information changed.
root@ubuntu:/home/philip# passwd --status tom
tom L 09/04/2018 0 99999 7 -1
root@ubuntu:/home/philip#
philip@ubuntu: ~
tom@ubuntu:/home/philip$ exit
exit
philip@ubuntu:~$ su tom
Password:
su: Authentication failure
philip@ubuntu:~$ su tom
Password:
su: Authentication failure
philip@ubuntu:~$


Terminal
root@ubuntu: /home/philip
root@ubuntu:/home/philip#
root@ubuntu:/home/philip# passwd -u tom
passwd: password expiry information changed.
root@ubuntu:/home/philip# passwd --status tom
tom P 09/04/2018 0 99999 7 -1
root@ubuntu:/home/philip# passwd -l tom
passwd: password expiry information changed.
root@ubuntu:/home/philip# passwd --status tom
tom L 09/04/2018 0 99999 7 -1
root@ubuntu:/home/philip# cat /etc/shadow | grep tom
tom:!6uJ52BA2n$SWGisIpNTTOSygIX6swWdkS/gLPGZacEzCz2Ht6qfUHIr7ZIxkJyUjEyqN9ncb1
yIFIXYnePz4HVzrwqJA1DZ0:17778:0:99999:7:::
root@ubuntu:/home/philip#
root@ubuntu: /home/philip
root@ubuntu:/home/philip# su tom
tom@ubuntu:/home/philip$

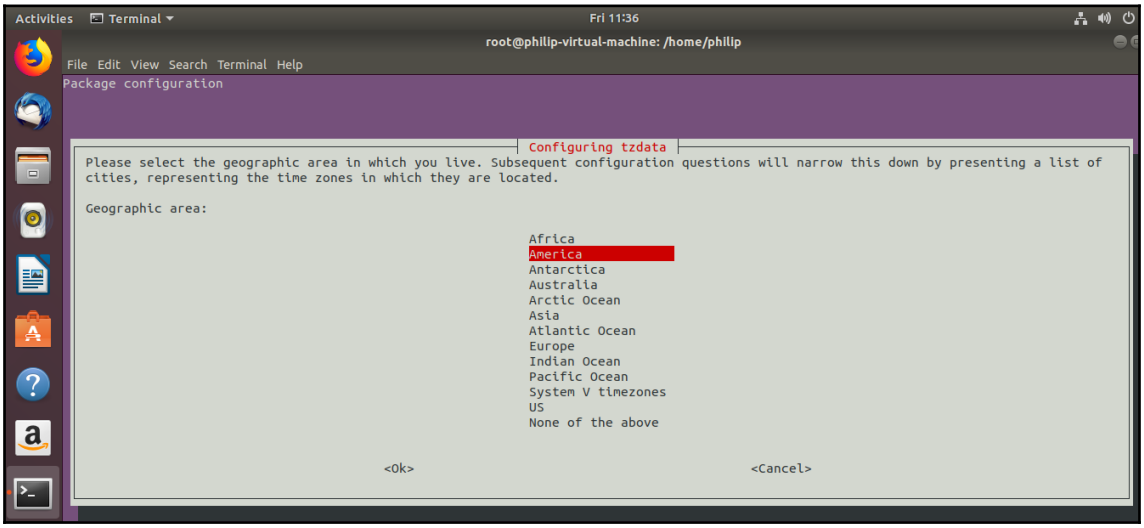
Chapter 13: Automating Tasks

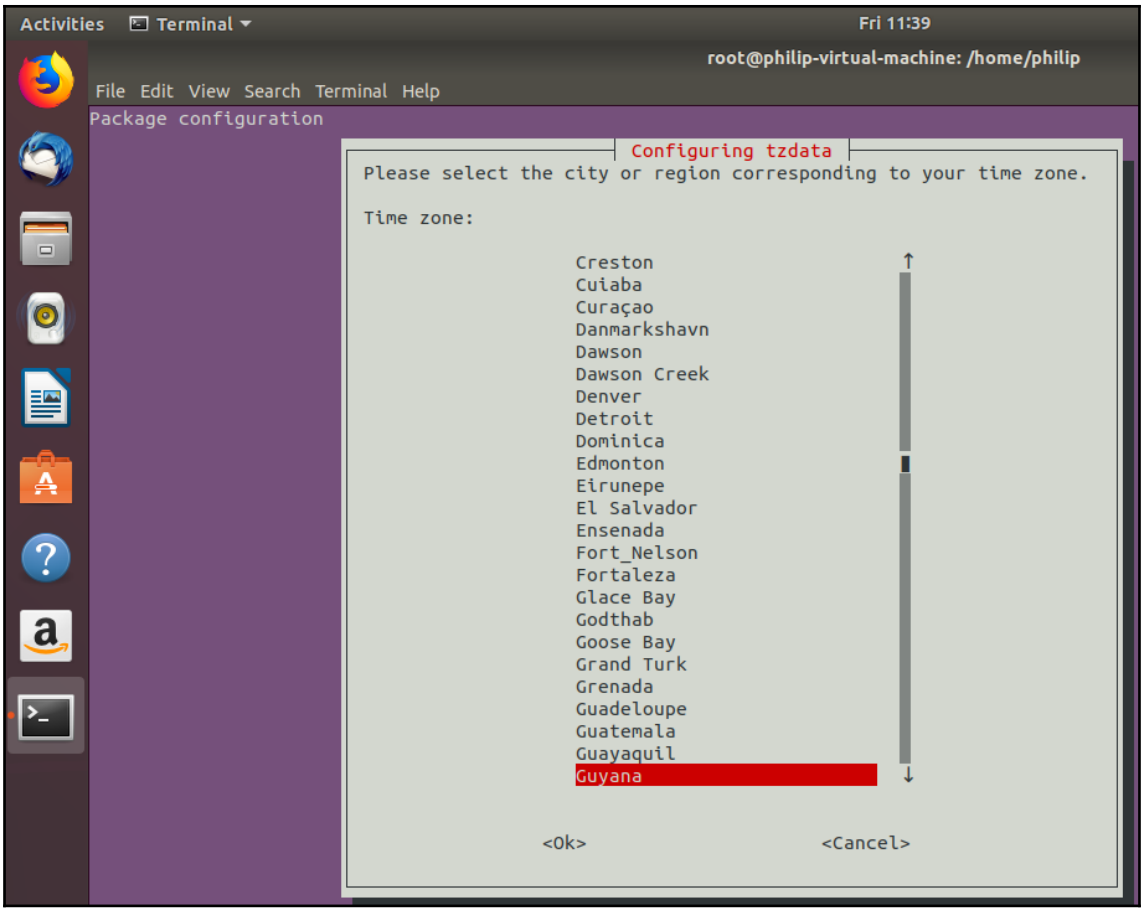


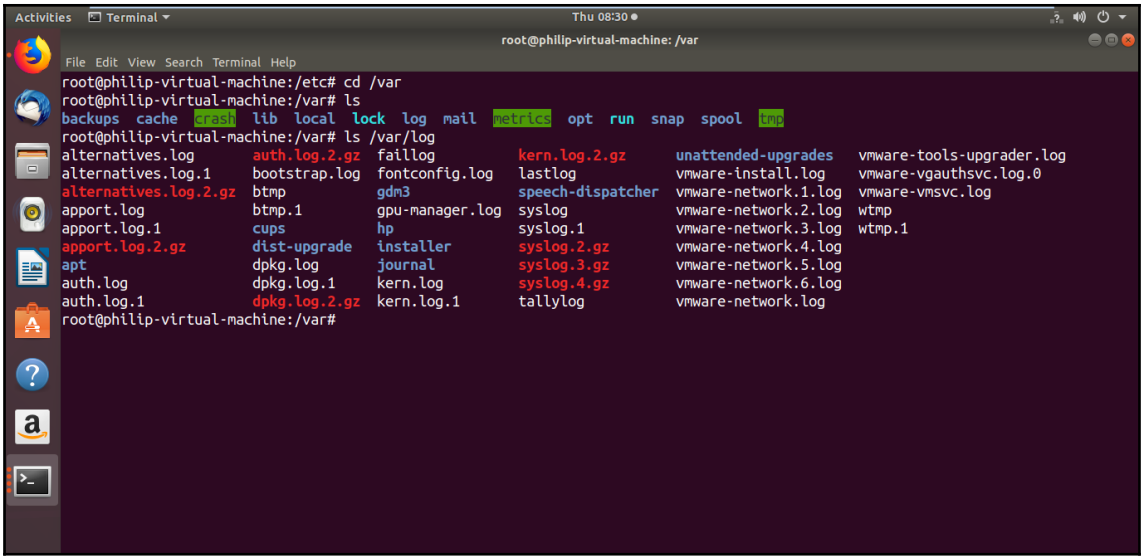

Activities
Terminal
Thu 12:00
root@philip-virtual-machine: /home/philip
File Edit View Search Terminal Help
GNU nano 2.9.3
/tmp/crontab.8okIs9/crontab
Edit this file to introduce tasks to be run by cron.
#
Each task to run has to be defined through a single line
indicating with different fields when the task will be run
and what command to run for the task
#
To define the time you can provide concrete values for
minute (m), hour (h), day of month (dom), month (mon),
and day of week (dow) or use '*' in these fields (for 'any').#
Notice that tasks will be started based on the cron's system
daemon's notion of time and timezones.
#
Output of the crontab jobs (including errors) is sent through
email to the user the crontab file belongs to (unless redirected).
#
For example, you can run a backup of all your user accounts
at 5 a.m every week with:
0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
For more information see the manual pages of crontab(5) and cron(8)
#
m h dom mon dow command
*/30 * * * * /bin/ls -l /boot >> /home/philip/Documents/ls_crontab
^G Get Help
^O Write Out
^W Where Is
^K Cut Text
^J Justify
^C Cur Pos
^X Exit
^R Read File
^\ Replace
^U Uncut Text
^T To Spell
^_ Go To Line

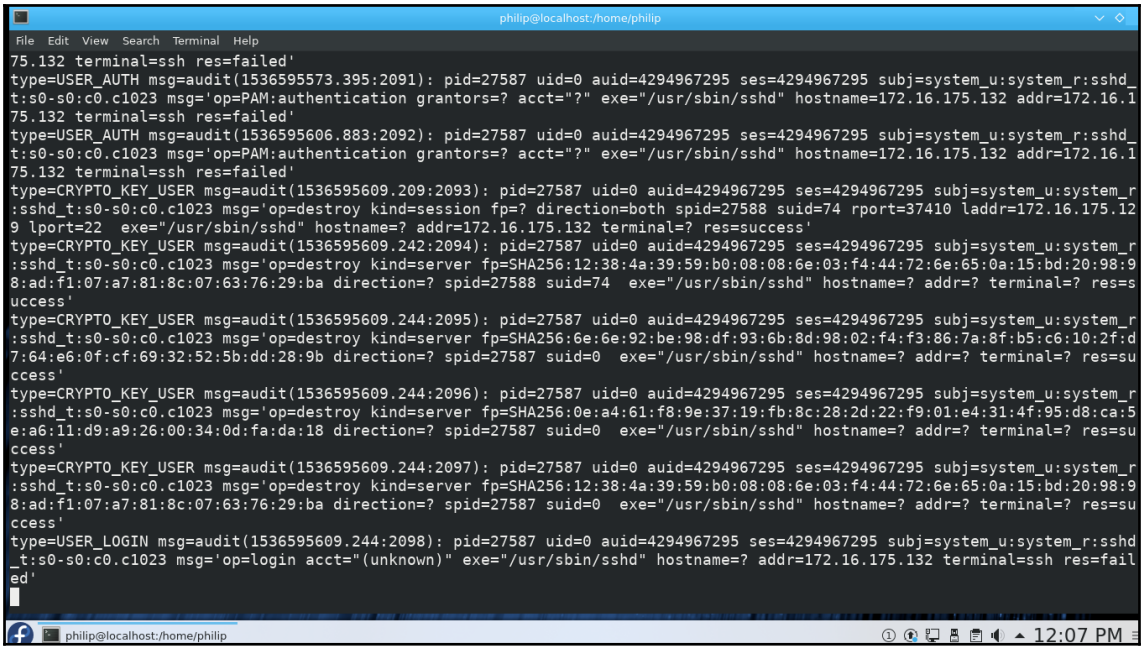

Activities
Terminal
Thu 12:01
root@philip-virtual-machine: /home/philip
File Edit View Search Terminal Help
GNU nano 2.9.3
/tmp/crontab.8okIs9/crontab
Edit this file to introduce tasks to be run by cron.
#
Each task to run has to be defined through a single line
indicating with different fields when the task will be run
and what command to run for the task
#
To define the time you can provide concrete values for
minute (m), hour (h), day of month (dom), month (mon),
and day of week (dow) or use '*' in these fields (for 'any').#
Notice that tasks will be started based on the cron's system
daemon's notion of time and timezones.
#
Output of the crontab jobs (including errors) is sent through
email to the user the crontab file belongs to (unless redirected).
#
For example, you can run a backup of all your user accounts
at 5 a.m every week with:
0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
For more information see the manual pages of crontab(5) and cron(8)
#
m h dom mon dow command
*/30 * * * * /bin/ls -l /boot >> /home/philip/Documents/ls_crontab
File Name to Write: /tmp/crontab.8okIs9/crontab
^G Get Help
M-D DOS Format
M-A Append
^C Cancel
M-M Mac Format
M-P Prepend

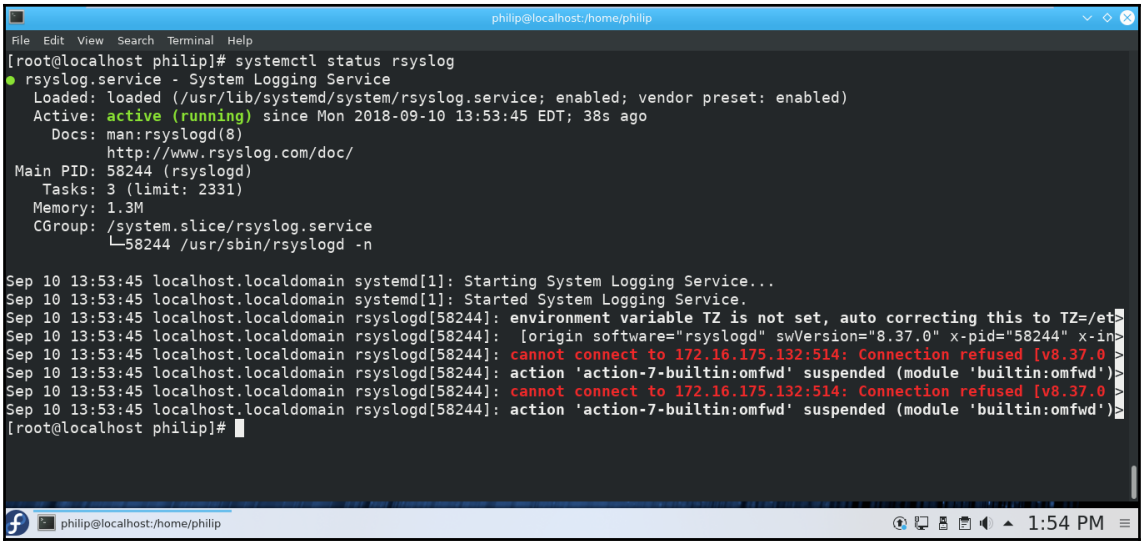
Chapter 14: Maintaining System Time and Logging

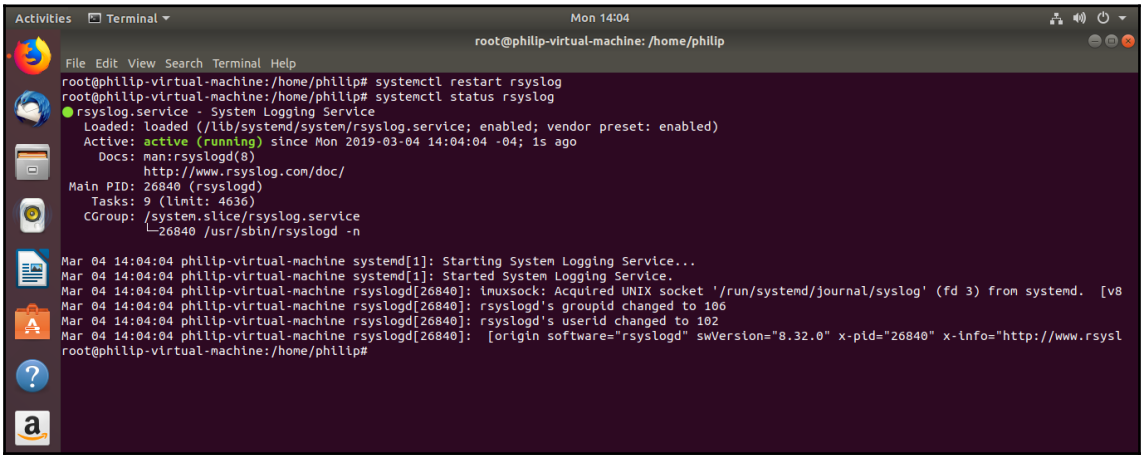



Activities
Terminal
Fri 11:39
root@philip-virtual-machine: /home/philip
File Edit View Search Terminal Help
Package configuration
Configuring tzdata
Please select the city or region corresponding to your time zone.
Time zone:
Creston
Cuiaba
Curaçao
Danmarkshavn
Dawson
Dawson Creek
Denver
Detroit
Dominica
Edmonton
Eirunepe
El Salvador
Ensenada
Fort_Nelson
Fortaleza
Glace Bay
Godthab
Goose Bay
Grand Turk
Grenada
Guadeloupe
Guatemala
Guayaquil
Guyana
<Ok>
<Cancel>

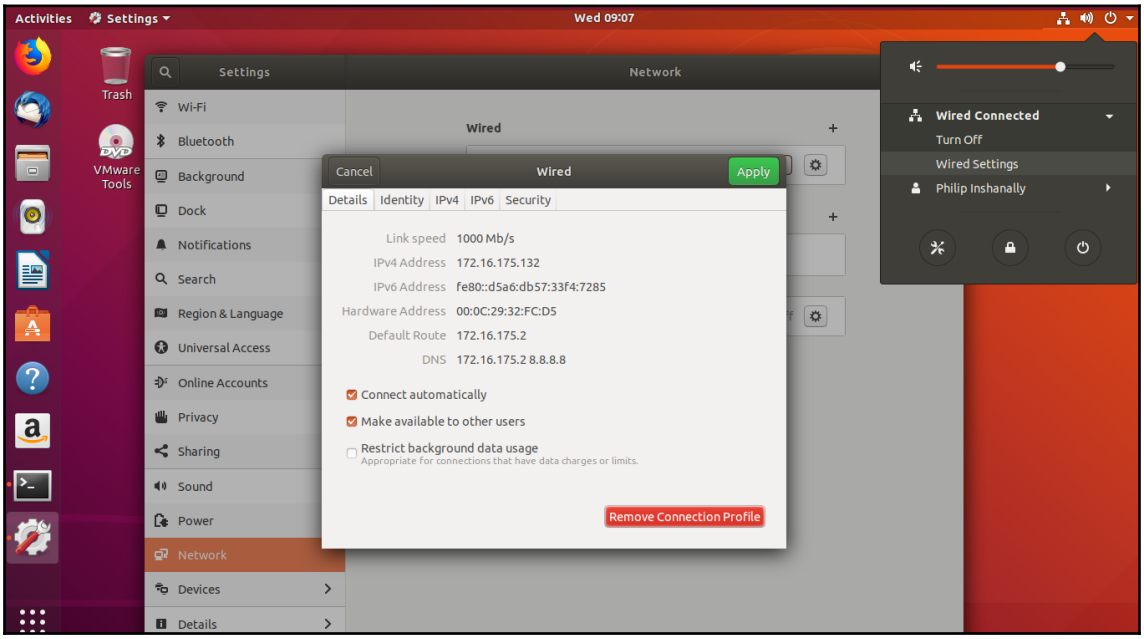

Activities
Terminal
Thu 08:30
root@philip-virtual-machine: /var
File Edit View Search Terminal Help
root@philip-virtual-machine:/etc# cd /var
root@philip-virtual-machine:/var# ls
backups cache crash lib local lock log mail metrics opt run snap spool tmp
root@philip-virtual-machine:/var# ls /var/log
alternatives.log auth.log.2.gz faillog kern.log.2.gz unattended-upgrades vmware-tools-upgrader.log
alternatives.log.1 bootstrap.log fontconfig.log lastlog vmware-install.log vmware-vgauthsvc.log.0
alternatives.log.2.gz btmp gdm3 speech-dispatcher vmware-network.1.log vmware-vmsvc.log
apport.log btmp.1 gpu-manager.log syslog vmware-network.2.log wtmp
apport.log.1 cups hp syslog.1 vmware-network.3.log wtmp.1
apport.log.2.gz dist-upgrade installer syslog.2.gz vmware-network.4.log
apt dpkg.log journal syslog.3.gz vmware-network.5.log
auth.log dpkg.log.1 kern.log syslog.4.gz vmware-network.6.log
auth.log.1 dpkg.log.2.gz kern.log.1 tallylog vmware-network.log
root@philip-virtual-machine:/var#

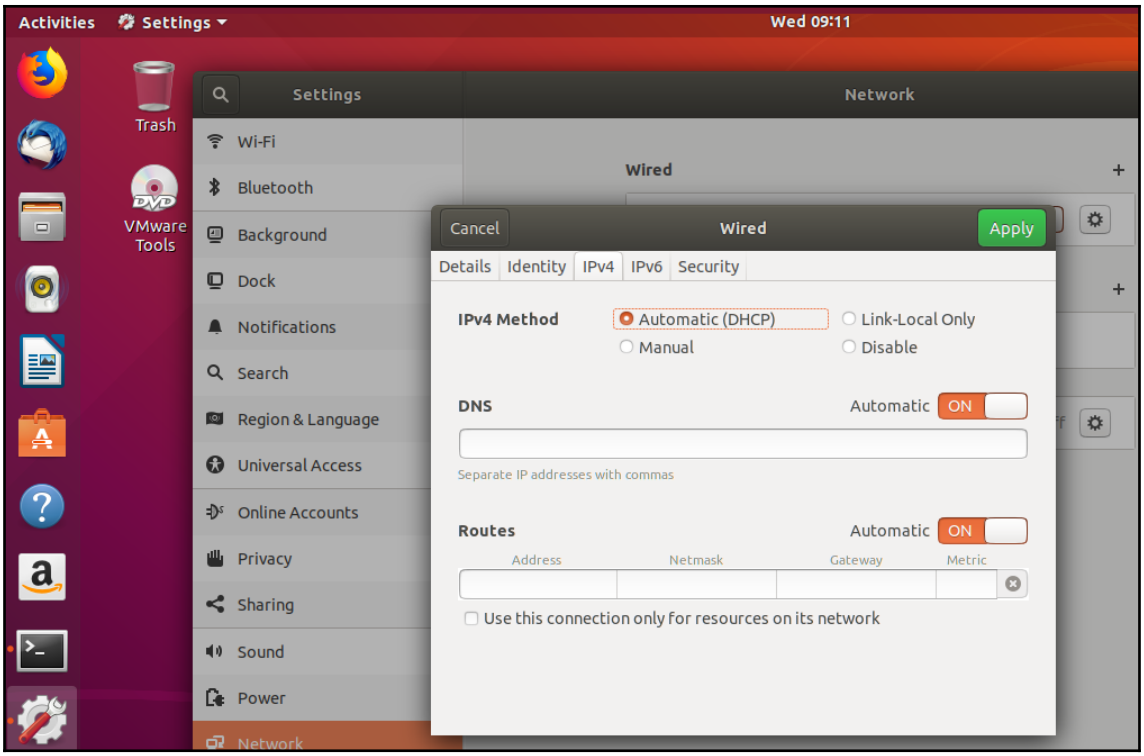

philip@localhost:/home/philip
File Edit View Search Terminal Help
75.132 terminal=ssh res=failed'
type=USER_AUTH msg=audit(1536595573.395:2091): pid=27587 uid=0 auid=4294967295 ses=4294967295 subj=system_u:system_r:sshd_t:s0-s0:c0.c1023 msg='op=PAM:authentication grantors=? acct="?" exe="/usr/sbin/sshd" hostname=172.16.175.132 addr=172.16.175.132 terminal=ssh res=failed'
type=USER_AUTH msg=audit(1536595606.883:2092): pid=27587 uid=0 auid=4294967295 ses=4294967295 subj=system_u:system_r:sshd_t:s0-s0:c0.c1023 msg='op=PAM:authentication grantors=? acct="?" exe="/usr/sbin/sshd" hostname=172.16.175.132 addr=172.16.175.132 terminal=ssh res=failed'
type=CRYPTO_KEY_USER msg=audit(1536595609.209:2093): pid=27587 uid=0 auid=4294967295 ses=4294967295 subj=system_u:system_r:sshd_t:s0-s0:c0.c1023 msg='op=destroy kind=session fp=? direction=both spid=27588 suid=74 rport=37410 laddr=172.16.175.129 lport=22 exe="/usr/sbin/sshd" hostname=? addr=172.16.175.132 terminal=? res=success'
type=CRYPTO_KEY_USER msg=audit(1536595609.242:2094): pid=27587 uid=0 auid=4294967295 ses=4294967295 subj=system_u:system_r:sshd_t:s0-s0:c0.c1023 msg='op=destroy kind=server fp=SHA256:12:38:4a:39:59:b0:08:08:6e:03:f4:44:72:6e:65:0a:15:bd:20:98:98:ad:f1:07:a7:81:8c:07:63:76:29:ba direction=? spid=27588 suid=74 exe="/usr/sbin/sshd" hostname=? addr=? terminal=? res=success'
type=CRYPTO_KEY_USER msg=audit(1536595609.244:2095): pid=27587 uid=0 auid=4294967295 ses=4294967295 subj=system_u:system_r:sshd_t:s0-s0:c0.c1023 msg='op=destroy kind=server fp=SHA256:6e:6e:92:be:98:df:93:6b:8d:98:02:f4:f3:86:7a:8f:b5:c6:10:2f:d7:64:e6:0f:cf:69:32:52:5b:dd:28:9b direction=? spid=27587 suid=0 exe="/usr/sbin/sshd" hostname=? addr=? terminal=? res=success'
type=CRYPTO_KEY_USER msg=audit(1536595609.244:2096): pid=27587 uid=0 auid=4294967295 ses=4294967295 subj=system_u:system_r:sshd_t:s0-s0:c0.c1023 msg='op=destroy kind=server fp=SHA256:0e:a4:61:f8:9e:37:19:fb:8c:28:2d:22:f9:01:e4:31:4f:95:d8:ca:5e:a6:11:d9:a9:26:00:34:0d:fa:da:18 direction=? spid=27587 suid=0 exe="/usr/sbin/sshd" hostname=? addr=? terminal=? res=success'
type=CRYPTO_KEY_USER msg=audit(1536595609.244:2097): pid=27587 uid=0 auid=4294967295 ses=4294967295 subj=system_u:system_r:sshd_t:s0-s0:c0.c1023 msg='op=destroy kind=server fp=SHA256:12:38:4a:39:59:b0:08:08:6e:03:f4:44:72:6e:65:0a:15:bd:20:98:98:ad:f1:07:a7:81:8c:07:63:76:29:ba direction=? spid=27587 suid=0 exe="/usr/sbin/sshd" hostname=? addr=? terminal=? res=success'
type=USER_LOGIN msg=audit(1536595609.244:2098): pid=27587 uid=0 auid=4294967295 ses=4294967295 subj=system_u:system_r:sshd_t:s0-s0:c0.c1023 msg='op=login acct="(unknown)" exe="/usr/sbin/sshd" hostname=? addr=172.16.175.132 terminal=ssh res=failed'
philip@localhost:/home/philip
12:07 PM

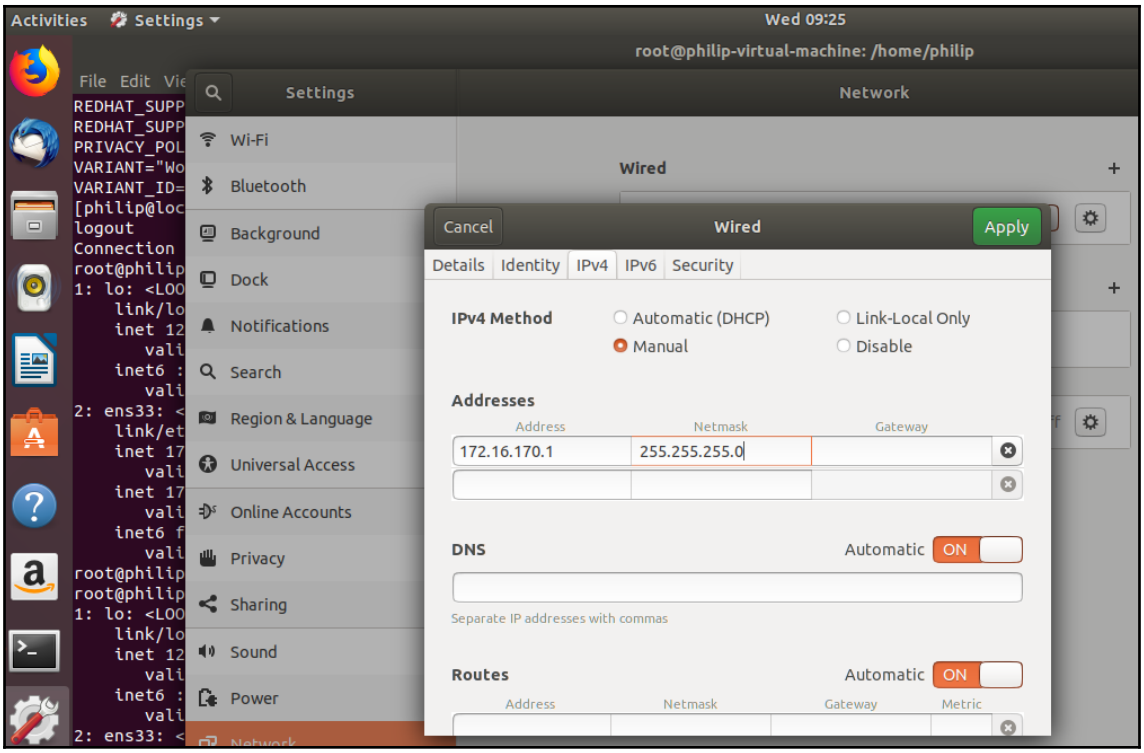

philip@localhost:/home/philip
File Edit View Search Terminal Help
[root@localhost philip]# systemctl status rsyslog
● rsyslog.service - System Logging Service
Loaded: loaded (/usr/lib/systemd/system/rsyslog.service; enabled; vendor preset: enabled)
Active: active (running) since Mon 2018-09-10 13:53:45 EDT; 38s ago
Docs: man:rsyslogd(8)
http://www.rsyslog.com/doc/
Main PID: 58244 (rsyslogd)
Tasks: 3 (limit: 2331)
Memory: 1.3M
CGroup: /system.slice/rsyslog.service
└─58244 /usr/sbin/rsyslogd -n
Sep 10 13:53:45 localhost.localdomain systemd[1]: Starting System Logging Service...
Sep 10 13:53:45 localhost.localdomain systemd[1]: Started System Logging Service.
Sep 10 13:53:45 localhost.localdomain rsyslogd[58244]: environment variable TZ is not set, auto correcting this to TZ=/et>
Sep 10 13:53:45 localhost.localdomain rsyslogd[58244]: [origin software="rsyslogd" swVersion="8.37.0" x-pid="58244" x-in>
Sep 10 13:53:45 localhost.localdomain rsyslogd[58244]: cannot connect to 172.16.175.132:514: Connection refused [v8.37.0 >
Sep 10 13:53:45 localhost.localdomain rsyslogd[58244]: action 'action-7-builtin:omfwd' suspended (module 'builtin:omfwd')>
Sep 10 13:53:45 localhost.localdomain rsyslogd[58244]: cannot connect to 172.16.175.132:514: Connection refused [v8.37.0 >
Sep 10 13:53:45 localhost.localdomain rsyslogd[58244]: action 'action-7-builtin:omfwd' suspended (module 'builtin:omfwd')>
[root@localhost philip]#
philip@localhost:/home/philip
1:54 PM

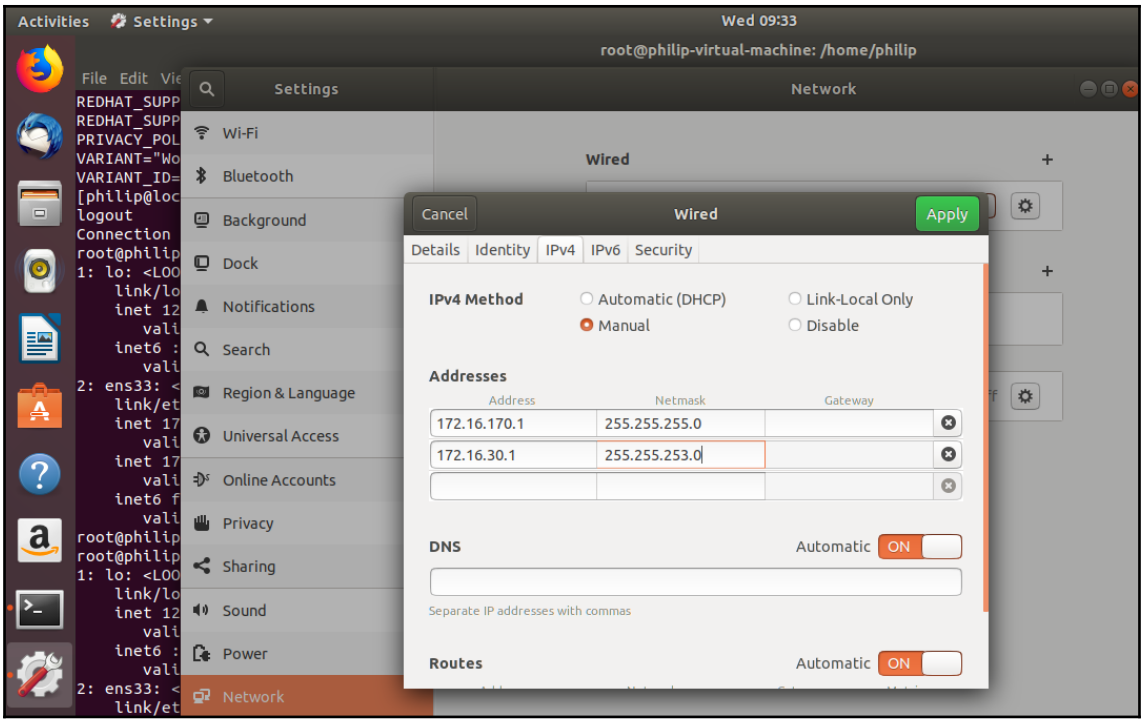

Activities
Terminal
Mon 14:04
root@philip-virtual-machine: /home/philip
File Edit View Search Terminal Help
root@philip-virtual-machine:/home/philip# systemctl restart rsyslog
root@philip-virtual-machine:/home/philip# systemctl status rsyslog
● rsyslog.service - System Logging Service
Loaded: loaded (/lib/systemd/system/rsyslog.service; enabled; vendor preset: enabled)
Active: active (running) since Mon 2019-03-04 14:04:04 -04; 1s ago
Docs: man:rsyslogd(8)
http://www.rsyslog.com/doc/
Main PID: 26840 (rsyslogd)
Tasks: 9 (limit: 4636)
CGroup: /system.slice/rsyslog.service
└─26840 /usr/sbin/rsyslogd -n
Mar 04 14:04:04 philip-virtual-machine systemd[1]: Starting System Logging Service...
Mar 04 14:04:04 philip-virtual-machine systemd[1]: Started System Logging Service.
Mar 04 14:04:04 philip-virtual-machine rsyslogd[26840]: imuxsock: Acquired UNIX socket '/run/systemd/journal/syslog' (fd 3) from systemd. [v8
Mar 04 14:04:04 philip-virtual-machine rsyslogd[26840]: rsyslogd's groupid changed to 106
Mar 04 14:04:04 philip-virtual-machine rsyslogd[26840]: rsyslogd's userid changed to 102
Mar 04 14:04:04 philip-virtual-machine rsyslogd[26840]: [origin software="rsyslogd" swVersion="8.32.0" x-pid="26840" x-info="http://www.rsysl
root@philip-virtual-machine:/home/philip#

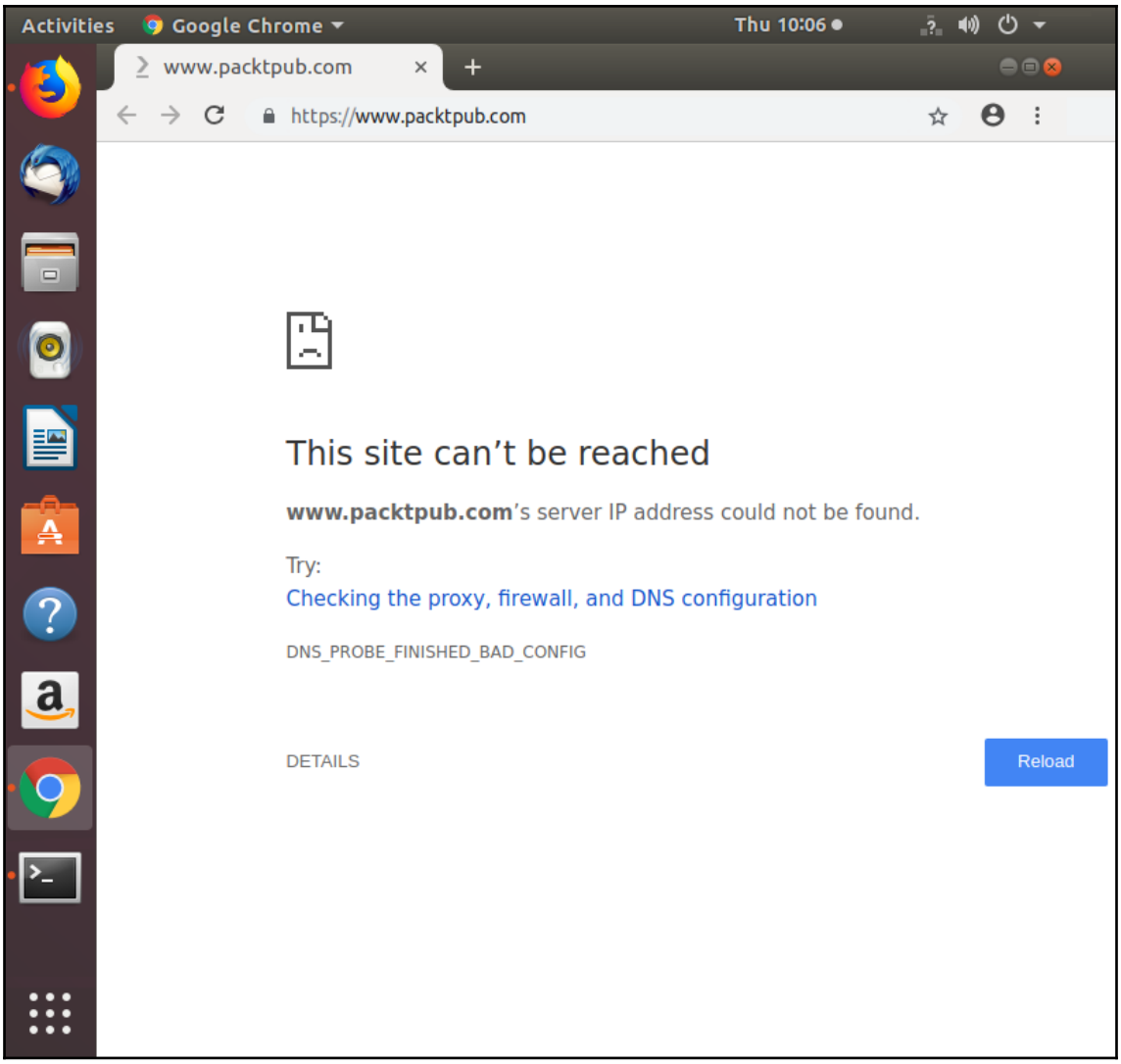
Chapter 16: Network Configuration and Troubleshooting

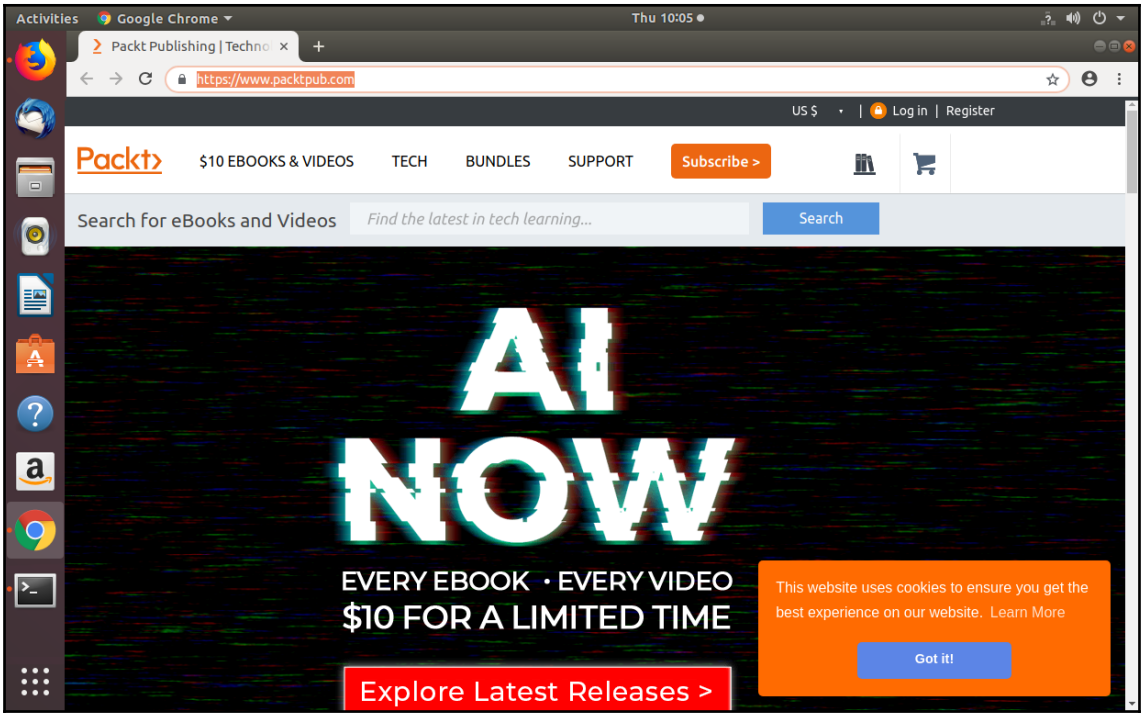


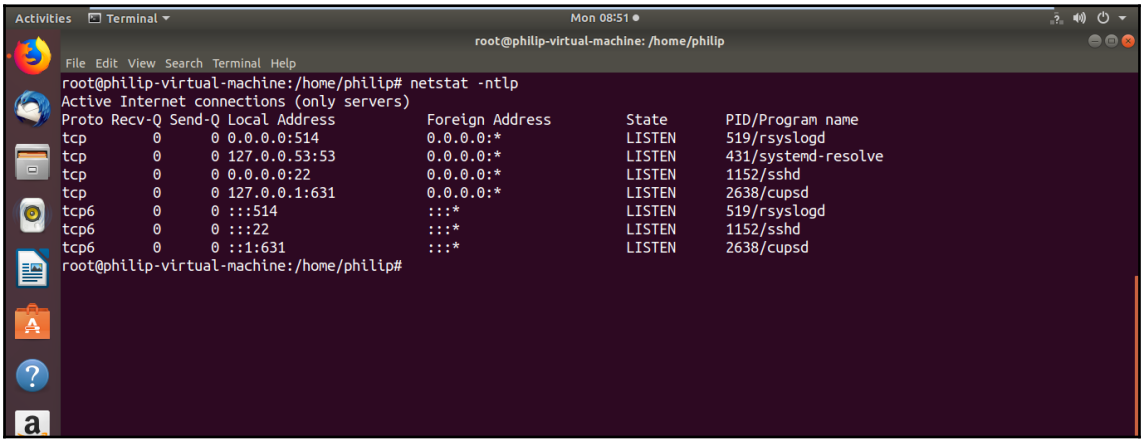

Activities
Settings
Wed 09:11
Trash
VMware Tools
Settings
Network
Wi-Fi
Bluetooth
Background
Dock
Notifications
Search
Region & Language
Universal Access
Online Accounts
Privacy
Sharing
Sound
Power
Network
Wired
Cancel
Wired
Apply
Details
Identity
IPv4
IPv6
Security
IPv4 Method
Automatic (DHCP)
Link-Local Only
Manual
Disable
DNS
Automatic
ON
Separate IP addresses with commas
Routes
Automatic
ON
Address
Netmask
Gateway
Metric
Use this connection only for resources on its network

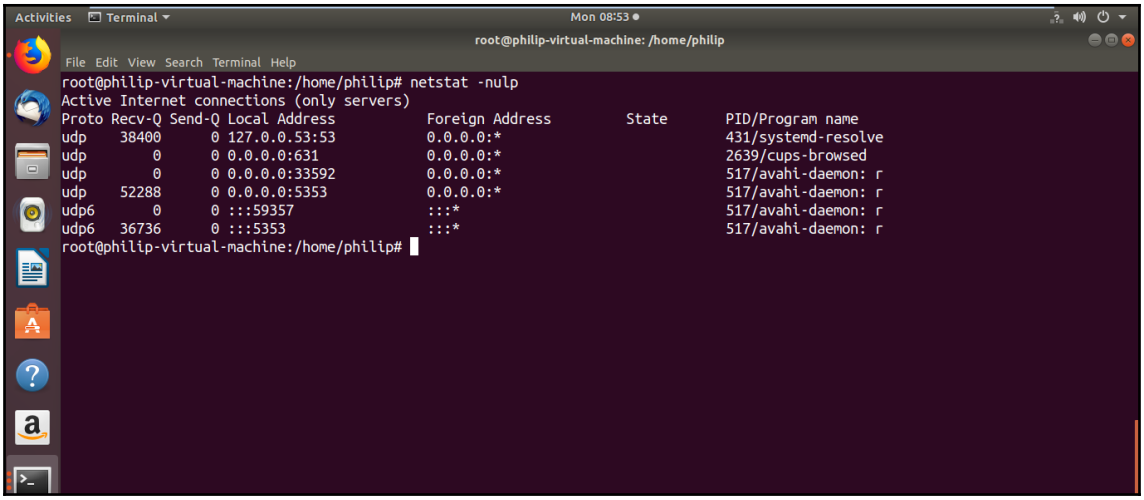

Activities
Settings
Wed 09:25
root@philip-virtual-machine: /home/philip
File Edit Vie
REDHAT_SUPP
REDHAT_SUPP
PRIVACY_POL
VARIANT="Wo
VARIANT_ID=
[philip@loc
logout
Connection
root@philip
1: lo: <LOO
link/lo
inet 12
vali
inet6 :
vali
2: ens33: <
link/et
inet 17
vali
inet 17
vali
inet6 f
vali
root@philip
root@philip
1: lo: <LOO
link/lo
inet 12
vali
inet6 :
vali
2: ens33: <
Settings
Wi-Fi
Bluetooth
Background
Dock
Notifications
Search
Region & Language
Universal Access
Online Accounts
Privacy
Sharing
Sound
Power
Network
Network
Wired
Cancel
Wired
Apply
Details
Identity
IPv4
IPv6
Security
IPv4 Method
Automatic (DHCP)
Link-Local Only
Manual
Disable
Addresses
Address
Netmask
Gateway
172.16.170.1
255.255.255.0
DNS
Automatic
ON
Separate IP addresses with commas
Routes
Automatic
ON
Address
Netmask
Gateway
Metric


Activities
Settings
Wed 09:33
root@philip-virtual-machine: /home/philip
File Edit Vie
REDHAT_SUPP
REDHAT_SUPP
PRIVACY_POL
VARIANT="Wo
VARIANT_ID=
[philip@loc
logout
Connection
root@philip
1: lo: <LOO
link/lo
inet 12
vali
inet6 :
vali
2: ens33: <
link/et
inet 17
vali
inet 17
vali
inet6 f
vali
root@philip
root@philip
1: lo: <LOO
link/lo
inet 12
vali
inet6 :
vali
2: ens33: <
link/et
Settings
Wi-Fi
Bluetooth
Background
Dock
Notifications
Search
Region & Language
Universal Access
Online Accounts
Privacy
Sharing
Sound
Power
Network
Network
Wired
Cancel
Wired
Apply
Details
Identity
IPv4
IPv6
Security
IPv4 Method
Automatic (DHCP)
Link-Local Only
Manual
Disable
Addresses
Address
Netmask
Gateway
172.16.170.1
255.255.255.0
172.16.30.1
255.255.253.0
DNS
Automatic
ON
Separate IP addresses with commas
Routes
Automatic
ON

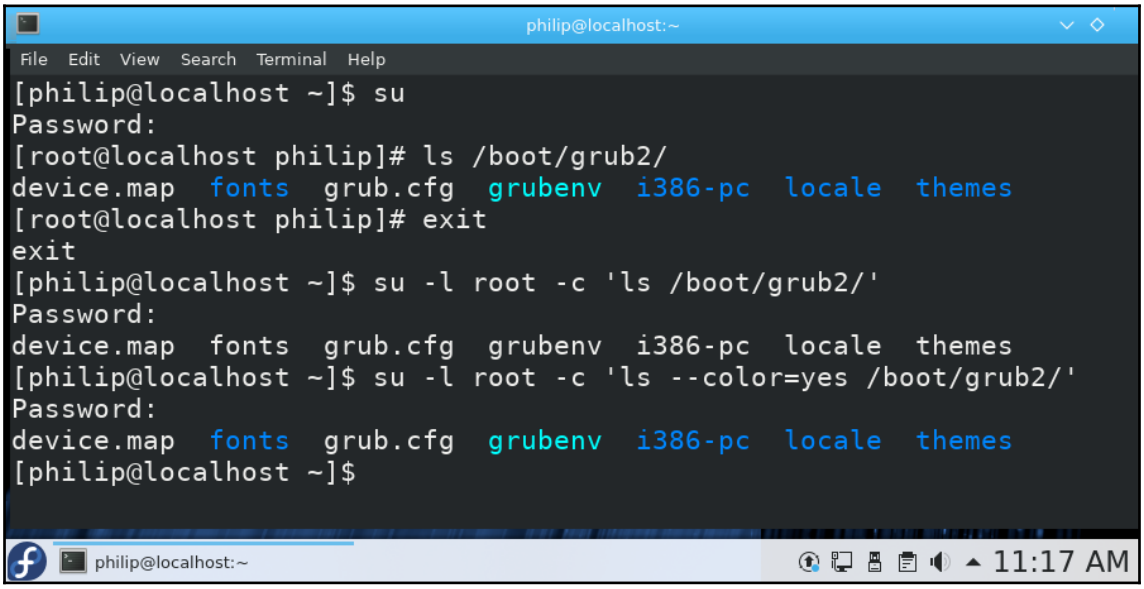

Activities
Google Chrome
Thu 10:06
www.packtpub.com
https://www.packtpub.com
This site can’t be reached
www.packtpub.com’s server IP address could not be found.
Try:
Checking the proxy, firewall, and DNS configuration
DNS_PROBE_FINISHED_BAD_CONFIG
DETAILS
Reload

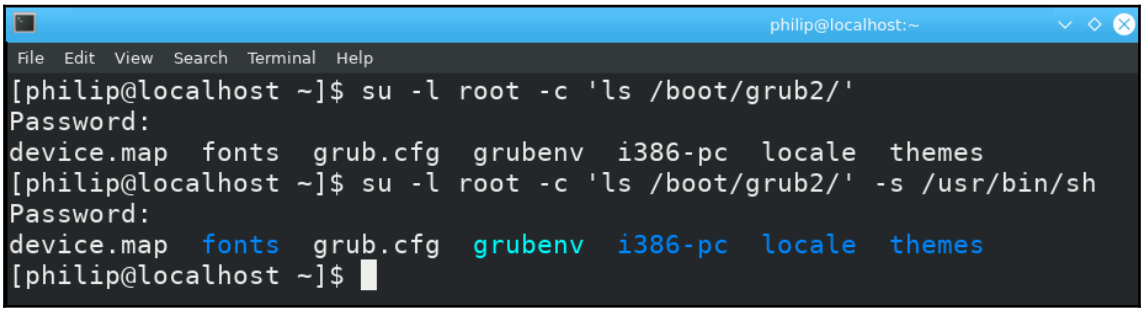

Activities
Google Chrome
Thu 10:05
Packt Publishing | Techno
https://www.packtpub.com
US $
Log in | Register
Packt
$10 EBOOKS & VIDEOS
TECH
BUNDLES
SUPPORT
Subscribe >
Search for eBooks and Videos
Find the latest in tech learning...
Search
AI
NOW
EVERY EBOOK · EVERY VIDEO
$10 FOR A LIMITED TIME
Explore Latest Releases >
This website uses cookies to ensure you get the best experience on our website. Learn More
Got it!

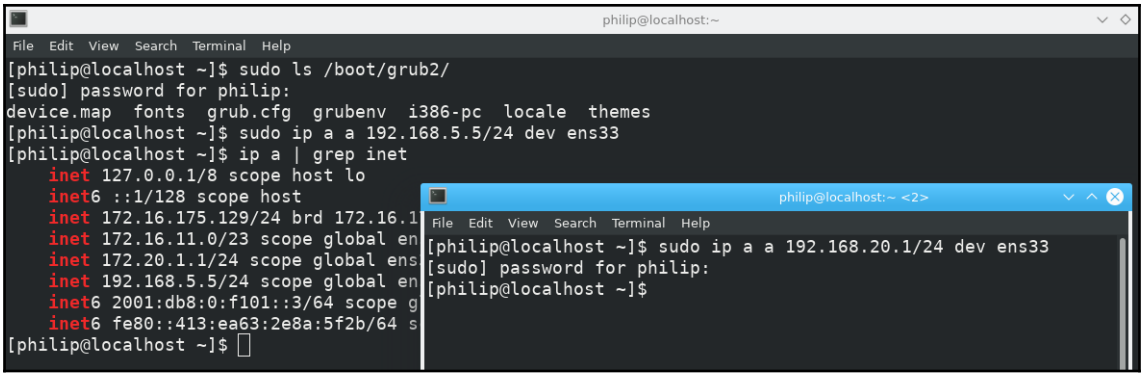

Activities
Terminal
Mon 08:51
root@philip-virtual-machine: /home/philip
File Edit View Search Terminal Help
root@philip-virtual-machine:/home/philip# netstat -ntlp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address Foreign Address State PID/Program name
tcp 0 0 0.0.0.0:514 0.0.0.0:* LISTEN 519/rsyslogd
tcp 0 0 127.0.0.53:53 0.0.0.0:* LISTEN 431/systemd-resolve
tcp 0 0 0.0.0.0:22 0.0.0.0:* LISTEN 1152/sshd
tcp 0 0 127.0.0.1:631 0.0.0.0:* LISTEN 2638/cupsd
tcp6 0 0 :::514 :::* LISTEN 519/rsyslogd
tcp6 0 0 :::22 :::* LISTEN 1152/sshd
tcp6 0 0 ::1:631 :::* LISTEN 2638/cupsd
root@philip-virtual-machine:/home/philip#

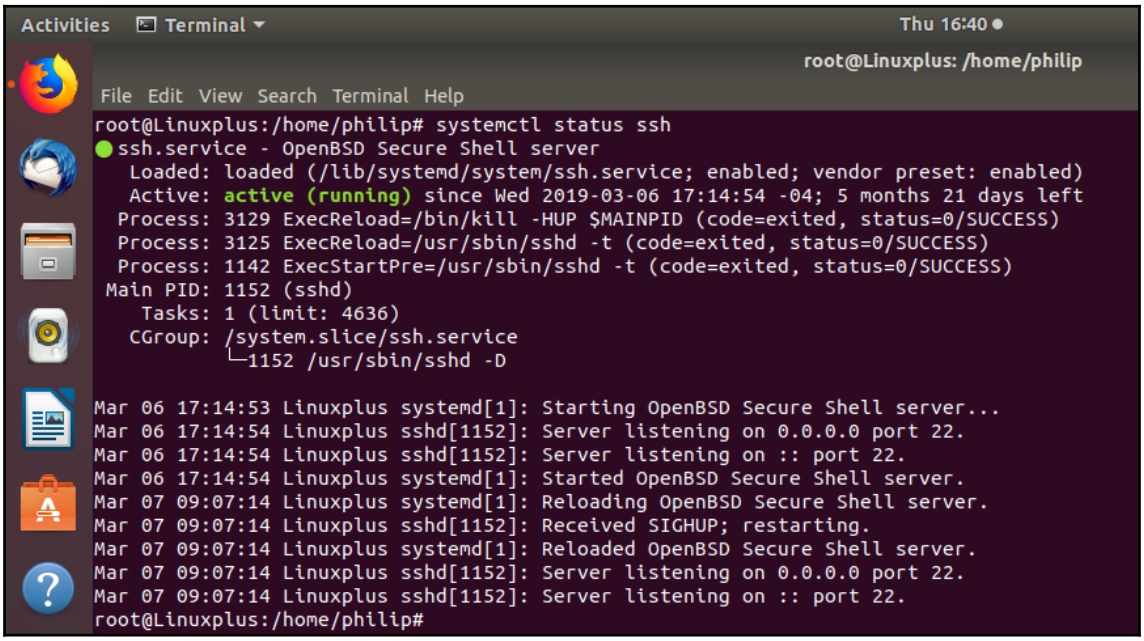

Activities
Terminal
Mon 08:53
root@philip-virtual-machine: /home/philip
File Edit View Search Terminal Help
root@philip-virtual-machine:/home/philip# netstat -nulp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address Foreign Address State PID/Program name
udp 38400 0 127.0.0.53:53 0.0.0.0:* 431/systemd-resolve
udp 0 0 0.0.0.0:631 0.0.0.0:* 2639/cups-browsed
udp 0 0 0.0.0.0:33592 0.0.0.0:* 517/avahi-daemon: r
udp 52288 0 0.0.0.0:5353 0.0.0.0:* 517/avahi-daemon: r
udp6 0 0 :::59357 :::* 517/avahi-daemon: r
udp6 36736 0 :::5353 :::* 517/avahi-daemon: r
root@philip-virtual-machine:/home/philip#

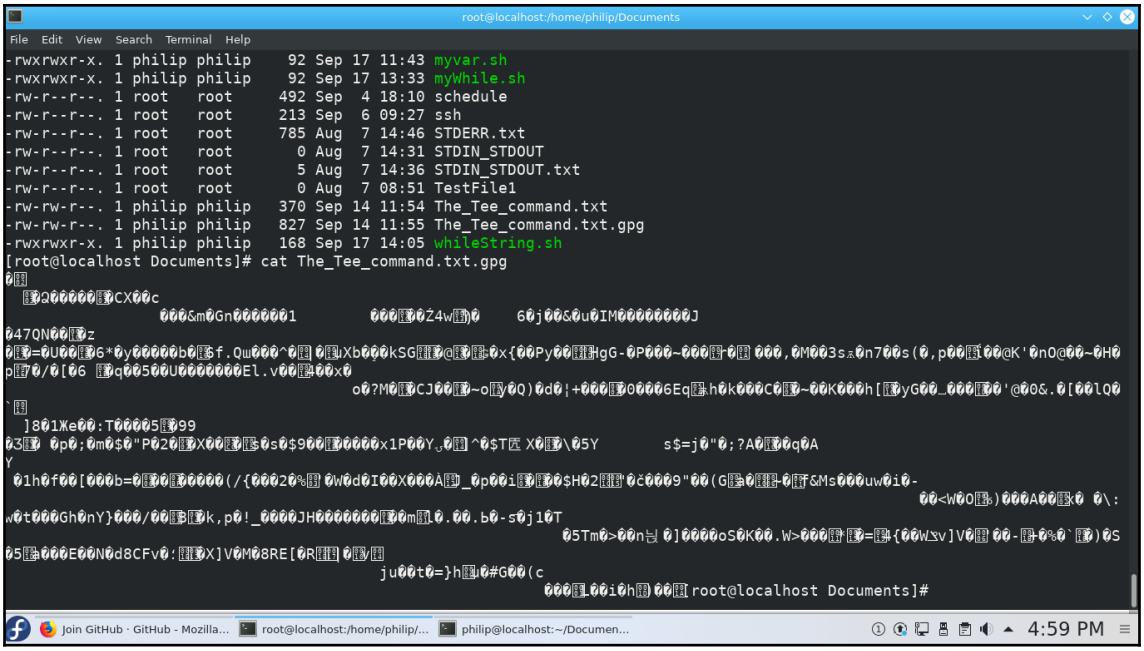
Chapter 17: Performing Administrative Security Tasks



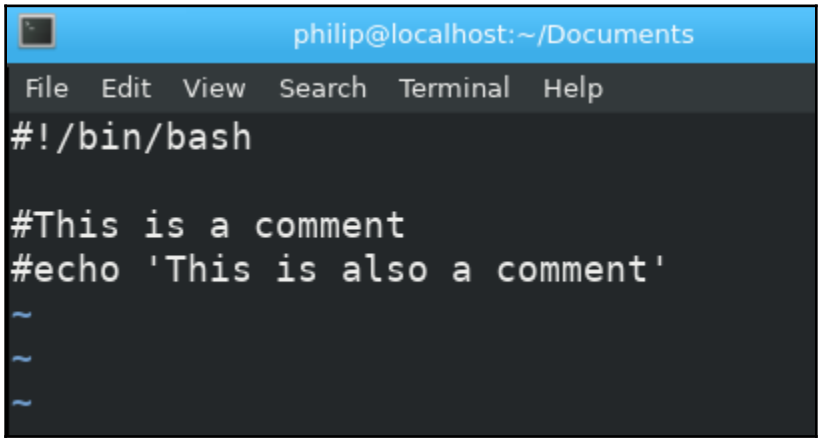


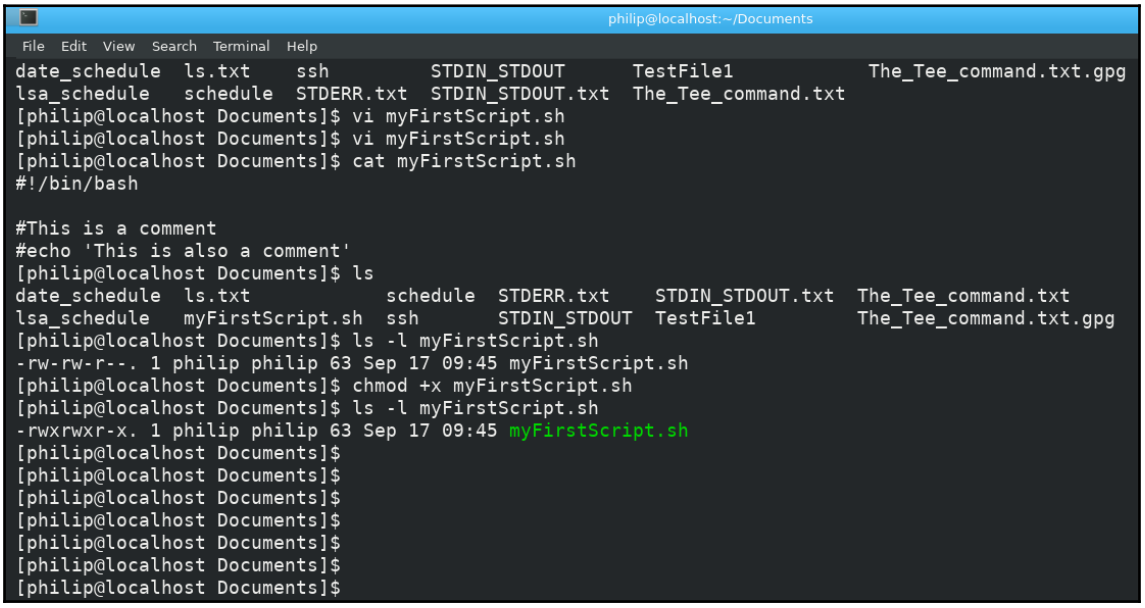

philip@localhost:~
File Edit View Search Terminal Help
[philip@localhost ~]$ sudo ls /boot/grub2/
[sudo] password for philip:
device.map fonts grub.cfg grubenv i386-pc locale themes
[philip@localhost ~]$ sudo ip a a 192.168.5.5/24 dev ens33
[philip@localhost ~]$ ip a | grep inet
inet 127.0.0.1/8 scope host lo
inet6 ::1/128 scope host
inet 172.16.175.129/24 brd 172.16.1
inet 172.16.11.0/23 scope global en
inet 172.20.1.1/24 scope global ens
inet 192.168.5.5/24 scope global en
inet6 2001:db8:0:f101::3/64 scope g
inet6 fe80::413:ea63:2e8a:5f2b/64 s
[philip@localhost ~]$
philip@localhost:~ <2>
File Edit View Search Terminal Help
[philip@localhost ~]$ sudo ip a a 192.168.20.1/24 dev ens33
[sudo] password for philip:
[philip@localhost ~]$

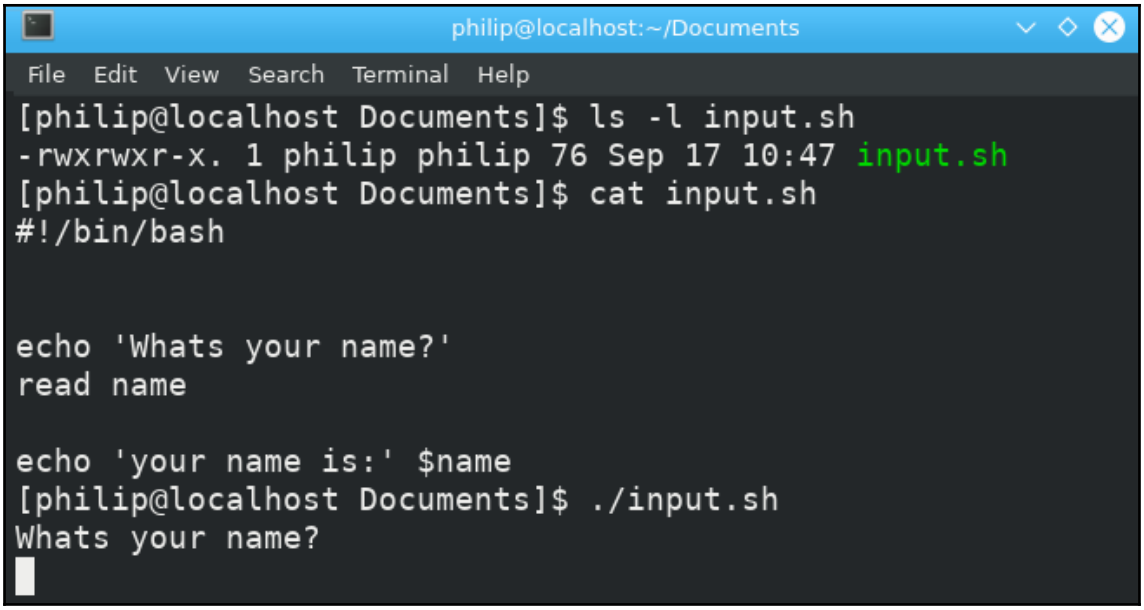

Activities
Terminal
Thu 16:40
root@Linuxplus: /home/philip
File Edit View Search Terminal Help
root@Linuxplus:/home/philip# systemctl status ssh
ssh.service - OpenBSD Secure Shell server
Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
Active: active (running) since Wed 2019-03-06 17:14:54 -04; 5 months 21 days left
Process: 3129 ExecReload=/bin/kill -HUP $MAINPID (code=exited, status=0/SUCCESS)
Process: 3125 ExecReload=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
Process: 1142 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
Main PID: 1152 (sshd)
Tasks: 1 (limit: 4636)
CGroup: /system.slice/ssh.service
└─1152 /usr/sbin/sshd -D
Mar 06 17:14:53 Linuxplus systemd[1]: Starting OpenBSD Secure Shell server...
Mar 06 17:14:54 Linuxplus sshd[1152]: Server listening on 0.0.0.0 port 22.
Mar 06 17:14:54 Linuxplus sshd[1152]: Server listening on :: port 22.
Mar 06 17:14:54 Linuxplus systemd[1]: Started OpenBSD Secure Shell server.
Mar 07 09:07:14 Linuxplus systemd[1]: Reloading OpenBSD Secure Shell server.
Mar 07 09:07:14 Linuxplus sshd[1152]: Received SIGHUP; restarting.
Mar 07 09:07:14 Linuxplus systemd[1]: Reloaded OpenBSD Secure Shell server.
Mar 07 09:07:14 Linuxplus sshd[1152]: Server listening on 0.0.0.0 port 22.
Mar 07 09:07:14 Linuxplus sshd[1152]: Server listening on :: port 22.
root@Linuxplus:/home/philip#

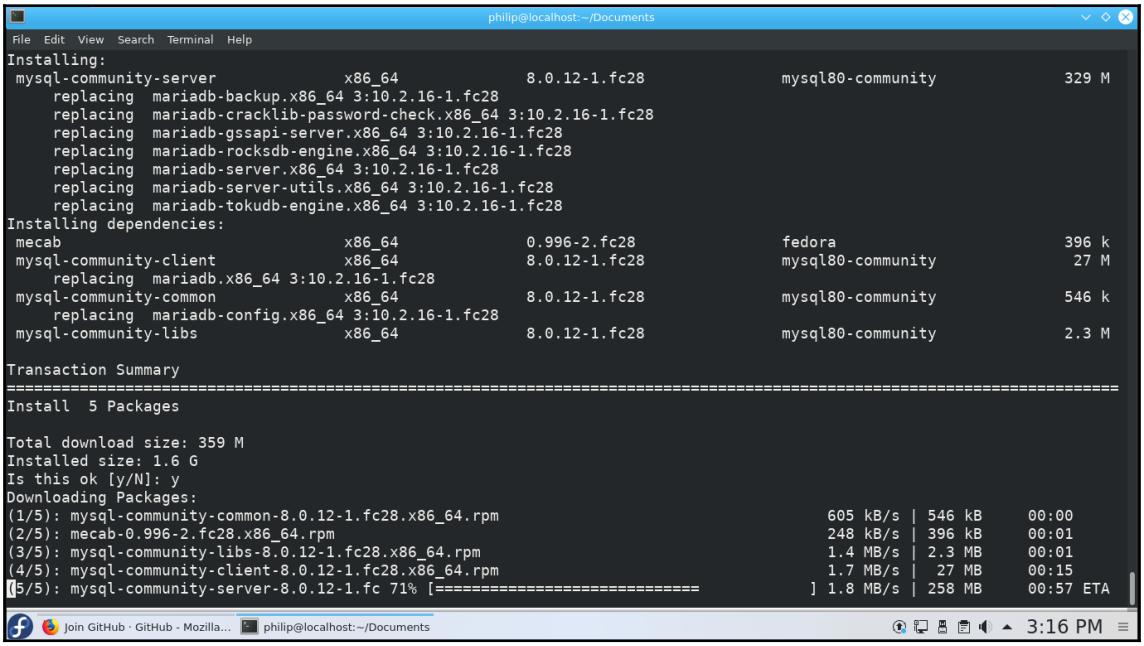

root@localhost:/home/philip/Documents
File Edit View Search Terminal Help
-rwxrwxr-x. 1 philip philip 92 Sep 17 11:43 myvar.sh
-rwxrwxr-x. 1 philip philip 92 Sep 17 13:33 myWhile.sh
-rw-r--r--. 1 root root 492 Sep 4 18:10 schedule
-rw-r--r--. 1 root root 213 Sep 6 09:27 ssh
-rw-r--r--. 1 root root 785 Aug 7 14:46 STDERR.txt
-rw-r--r--. 1 root root 0 Aug 7 14:31 STDIN_STDOUT
-rw-r--r--. 1 root root 5 Aug 7 14:36 STDIN_STDOUT.txt
-rw-r--r--. 1 root root 0 Aug 7 08:51 TestFile1
-rw-rw-r--. 1 philip philip 370 Sep 14 11:54 The_Tee_command.txt
-rw-rw-r--. 1 philip philip 827 Sep 14 11:55 The_Tee_command.txt.gpg
-rwxrwxr-x. 1 philip philip 168 Sep 17 14:05 whileString.sh
[root@localhost Documents]# cat The_Tee_command.txt.gpg
[root@localhost Documents]#
Join GitHub · GitHub - Mozilla...
root@localhost:/home/philip/...
philip@localhost:~/Documen...
4:59 PM

Chapter 18: Shell Scripting and SQL Data Management






philip@localhost:~/Documents
File Edit View Search Terminal Help
[philip@localhost Documents]$ ls -l input.sh
-rwxrwxr-x. 1 philip philip 76 Sep 17 10:47 input.sh
[philip@localhost Documents]$ cat input.sh
#!/bin/bash
echo 'Whats your name?'
read name
echo 'your name is:' $name
[philip@localhost Documents]$ ./input.sh
Whats your name?


philip@localhost:~/Documents
File Edit View Search Terminal Help
Installing:
mysql-community-server x86_64 8.0.12-1.fc28 mysql80-community 329 M
replacing mariadb-backup.x86_64 3:10.2.16-1.fc28
replacing mariadb-cracklib-password-check.x86_64 3:10.2.16-1.fc28
replacing mariadb-gssapi-server.x86_64 3:10.2.16-1.fc28
replacing mariadb-rocksdb-engine.x86_64 3:10.2.16-1.fc28
replacing mariadb-server.x86_64 3:10.2.16-1.fc28
replacing mariadb-server-utils.x86_64 3:10.2.16-1.fc28
replacing mariadb-tokudb-engine.x86_64 3:10.2.16-1.fc28
Installing dependencies:
mecab x86_64 0.996-2.fc28 fedora 396 k
mysql-community-client x86_64 8.0.12-1.fc28 mysql80-community 27 M
replacing mariadb.x86_64 3:10.2.16-1.fc28
mysql-community-common x86_64 8.0.12-1.fc28 mysql80-community 546 k
replacing mariadb-config.x86_64 3:10.2.16-1.fc28
mysql-community-libs x86_64 8.0.12-1.fc28 mysql80-community 2.3 M
Transaction Summary
Install 5 Packages
Total download size: 359 M
Installed size: 1.6 G
Is this ok [y/N]: y
Downloading Packages:
(1/5): mysql-community-common-8.0.12-1.fc28.x86_64.rpm 605 kB/s | 546 kB 00:00
(2/5): mecab-0.996-2.fc28.x86_64.rpm 248 kB/s | 396 kB 00:01
(3/5): mysql-community-libs-8.0.12-1.fc28.x86_64.rpm 1.4 MB/s | 2.3 MB 00:01
(4/5): mysql-community-client-8.0.12-1.fc28.x86_64.rpm 1.7 MB/s | 27 MB 00:15
(5/5): mysql-community-server-8.0.12-1.fc 71% [==========] 1.8 MB/s | 258 MB 00:57 ETA
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philip@localhost:~/Documents
3:16 PM