

Linux Intermediate

This cheat sheet introduces you to more Linux commands that every developer/sysadmin should know.

MORE

`more` command lets you view output in a scrollable manner.
`more /etc/passwd`

`ls -ll` | `more`

Up arrow and Down arrow let you scroll through the output.

`Space` key scrolls down one page.

`b` key scrolls up one page.

`/` search in the text.

SED

`sed` is used among other things to apply substitution, find or replace files content.

`sed 's/blue/red/' colors.txt` # changes the first occurrence in each line containing the blue word to red

`sed 's/blue/red/2' colors.txt` # changes the second occurrence in each line containing the blue word to red

`sed 's/blue/red/g' colors.txt` # changes all the occurrences containing the blue word to red

`sed '1,3 s/blue/red/g' colors.txt` # changes all the occurrences from line number 1 to 3 containing the blue word to red

`sed '5d' colors.txt` # deletes line number 5

`sed '12,$d' colors.txt` # deletes from line 12 to last line

The `sed` command also supports regular expression.

AWK

`awk` is a text manipulation tool implementing a powerful scripting language.

`awk '/red/ {print}' colors.txt` # prints lines matching the given pattern

`awk '{print $1,$4}' colors.txt` # split each line in columns (whitespace as separator) and prints column 1 and 4

`awk 'NR==3, NR==6 {print NR,$0}' colors.txt` # prints from line 3 to 6 prefixed with the line number (NR)

`awk 'NR > 1 {print}' colors.txt` # prints from line 2 to end of file

TOP

`top` command shows the Linux processes providing a dynamic real-time view of the system.

top

top -u # order process by CPU usage

top -o mem # order process by memory

top -n 5 # only shows 5 processes

```
top - 08:09:59 up 5 min, 1 user, load average: 0.97, 1.03, 0.51
Tasks: 198 total, 1 running, 197 sleeping, 0 stopped, 0 zombie
%Cpu(s): 10.5 us, 7.1 sy, 0.0 ni, 68.7 id, 2.0 wa, 5.4 hi, 6.1 si, 0.0 st
MiB Mem : 2904.9 total, 68.3 free, 1248.0 used, 1588.7 buff/cache
MiB Swap: 9644.0 total, 9639.5 free, 4.5 used. 1457.9 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
970	root	20	0	1088820	366364	22284	S	14.6	12.3	0:50.91	packagekitd
1428	osboxes	20	0	4041856	458692	126312	S	2.0	15.4	0:15.71	gnome-shell
97	root	20	0	0	0	0	S	0.3	0.0	0:00.21	kswapd0
1569	root	20	0	259096	29812	8296	S	0.3	1.0	0:00.50	sssd_kcm
1620	osboxes	20	0	907828	99104	48328	S	0.3	3.3	0:05.01	gnome-software
2148	osboxes	20	0	847028	57192	43912	S	0.3	1.9	0:03.17	gnome-terminal-
1	root	20	0	174688	16980	11192	S	0.0	0.6	0:01.39	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_gp
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_par_gp
5	root	20	0	0	0	0	I	0.0	0.0	0:00.02	kworker/0:0-events
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0H-kblockd
7	root	20	0	0	0	0	I	0.0	0.0	0:00.03	kworker/0:1-ata_sff
8	root	20	0	0	0	0	I	0.0	0.0	0:00.08	kworker/u2:0-flush-8:0
9	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_percpu_wq
10	root	20	0	0	0	0	S	0.0	0.0	0:00.35	ksoftirqd/0
11	root	20	0	0	0	0	I	0.0	0.0	0:00.09	rcu_sched
12	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	migration/0
13	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
14	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs
15	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns
16	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_tasks_kthre
17	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_tasks_rude_
18	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_tasks_trace

FIND

find command is used to search and locate files or directories that meet certain conditions.

find /home -name users.txt # finds users.txt file under /home and deep

find /home -iname users.txt # finds users.txt file ignoring case under /home and deep

find . -type f -name "*.java" # finds all Java files from current dir and deep

find / -type f -perm 0777 # finds all files

find / -perm /a=x # finds all executable files

find /home -user asotobu # finds all files that belong to asotobu

find /home -group developer # finds all files that belong to the developer group

find / -mtime 10 # finds all files modified in the last 10 days

find / -amin -10 # finds all files accessed in the last 10 minutes

PWD

`pwd` prints the current working directory.

`pwd`

`/home/asotobu/git`

DF

`df` gets a summary of available and used disk space usage of the file system.

`df`

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
devtmpfs	1466868	0	1466868	0%	/dev
tmpfs	1487316	0	1487316	0%	/dev/shm
tmpfs	594928	1352	593576	1%	/run
/dev/sda2	242531772	7477332	222664860	4%	/
tmpfs	1487320	104	1487216	1%	/tmp
/dev/sda1	999320	186056	744452	20%	/boot
/dev/sda5	262140036	89320	248665092	1%	/home
tmpfs	297460	160	297300	1%	/run/user/1000

Disk space in human-readable format.

`df -h`

Filesystem	Size	Used	Avail	Use%	Mounted on
devtmpfs	1.4G	0	1.4G	0%	/dev
tmpfs	1.5G	0	1.5G	0%	/dev/shm
tmpfs	581M	1.4M	580M	1%	/run
/dev/sda2	232G	7.2G	213G	4%	/
tmpfs	1.5G	104K	1.5G	1%	/tmp
/dev/sda1	976M	182M	728M	20%	/boot
/dev/sda5	250G	88M	238G	1%	/home
tmpfs	291M	160K	291M	1%	/run/user/1000

DU

`du` is used to check the information of disk usage of files and directories.

`du`

```
4      ./etc
4      ./bin
4      ./sbin
4      ./games
4      ./share/man/man5
4      ./share/man/man1x
4      ./share/man/man6
4      ./share/man/man8
4      ./share/man/man5x
4      ./share/man/man2x
4      ./share/man/man4x
4      ./share/man/man9x
4      ./share/man/man6
4      ./share/man/man7
4      ./share/man/man3
4      ./share/man/man6x
4      ./share/man/man3x
4      ./share/man/man4
4      ./share/man/man1
4      ./share/man/man8x
4      ./share/man/man7x
4      ./share/man/man2
4      ./share/man/man9
80     ./share/man
8      ./share/applications
4      ./share/info
96     ./share
4      ./lib
4      ./libexec
4      ./include
4      ./src
4      ./lib64/bpf
8      ./lib64
140    .
51     67  71  74  77  80  83  86  89  92  95  98 101 104 107 110 113 116 119 122 125 128 131 134 137 140 143 146 149 152 155 158 161 164 167 170 173 176 179 182 185 188 191 194 197 200 203 206 209 212 215 218 221 224 227 230 233 236 239 242 245 248 251 254 257 260 263 266 269 272 275 278 281 284 287 290 293 296 299 302 305 308 311 314 317 320 323 326 329 332 335 338 341 344 347 350 353 356 359 362 365 368 371 374 377 380 383 386 389 392 395 398 401 404 407 410 413 416 419 422 425 428 431 434 437 440 443 446 449 452 455 458 461 464 467 470 473 476 479 482 485 488 491 494 497 500 503 506 509 512 515 518 521 524 527 530 533 536 539 542 545 548 551 554 557 560 563 566 569 572 575 578 581 584 587 590 593 596 599 602 605 608 611 614 617 620 623 626 629 632 635 638 641 644 647 650 653 656 659 662 665 668 671 674 677 680 683 686 689 692 695 698 701 704 707 710 713 716 719 722 725 728 731 734 737 740 743 746 749 752 755 758 761 764 767 770 773 776 779 782 785 788 791 794 797 800 803 806 809 812 815 818 821 824 827 830 833 836 839 842 845 848 851 854 857 860 863 866 869 872 875 878 881 884 887 890 893 896 899 902 905 908 911 914 917 920 923 926 929 932 935 938 941 944 947 950 953 956 959 962 965 968 971 974 977 980 983 986 989 992 995 998 1001 1004 1007 1010 1013 1016 1019 1022 1025 1028 1031 1034 1037 1040 1043 1046 1049 1052 1055 1058 1061 1064 1067 1070 1073 1076 1079 1082 1085 1088 1091 1094 1097 1100 1103 1106 1109 1112 1115 1118 1121 1124 1127 1130 1133 1136 1139 1142 1145 1148 1151 1154 1157 1160 1163 1166 1169 1172 1175 1178 1181 1184 1187 1190 1193 1196 1199 1202 1205 1208 1211 1214 1217 1220 1223 1226 1229 1232 1235 1238 1241 1244 1247 1250 1253 1256 1259 1262 1265 1268 1271 1274 1277 1280 1283 1286 1289 1292 1295 1298 1301 1304 1307 1310 1313 1316 1319 1322 1325 1328 1331 1334 1337 1340 1343 1346 1349 1352 1355 1358 1361 1364 1367 1370 1373 1376 1379 1382 1385 1388 1391 1394 1397 1400 1403 1406 1409 1412 1415 1418 1421 1424 1427 1430 1433 1436 1439 1442 1445 1448 1451 1454 1457 1460 1463 1466 1469 1472 1475 1478 1481 1484 1487 1490 1493 1496 1499 1502 1505 1508 1511 1514 1517 1520 1523 1526 1529 1532 1535 1538 1541 1544 1547 1550 1553 1556 1559 1562 1565 1568 1571 1574 1577 1580 1583 1586 1589 1592 1595 1598 1601 1604 1607 1610 1613 1616 1619 1622 1625 1628 1631 1634 1637 1640 1643 1646 1649 1652 1655 1658 1661 1664 1667 1670 1673 1676 1679 1682 1685 1688 1691 1694 1697 1700 1703 1706 1709 1712 1715 1718 1721 1724 1727 1730 1733 1736 1739 1742 1745 1748 1751 1754 1757 1760 1763 1766 1769 1772 1775 1778 1781 1784 1787 1790 1793 1796 1799 1802 1805 1808 1811 1814 1817 1820 1823 1826 1829 1832 1835 1838 1841 1844 1847 1850 1853 1856 1859 1862 1865 1868 1871 1874 1877 1880 1883 1886 1889 1892 1895 1898 1901 1904 1907 1910 1913 1916 1919 1922 1925 1928 1931 1934 1937 1940 1943 1946 1949 1952 1955 1958 1961 1964 1967 1970 1973 1976 1979 1982 1985 1988 1991 1994 1997 2000 2003 2006 2009 2012 2015 2018 2021 2024 2027 2030 2033 2036 2039 2042 2045 2048 2051 2054 2057 2060 2063 2066 2069 2072 2075 2078 2081 2084 2087 2090 2093 2096 2099 2102 2105 2108 2111 2114 2117 2120 2123 2126 2129 2132 2135 2138 2141 2144 2147 2150 2153 2156 2159 2162 2165 2168 2171 2174 2177 2180 2183 2186 2189 2192 2195 2198 2201 2204 2207 2210 2213 2216 2219 2222 2225 2228 2231 2234 2237 2240 2243 2246 2249 2252 2255 2258 2261 2264 2267 2270 2273 2276 2279 2282 2285 2288 2291 2294 2297 2300 2303 2306 2309 2312 2315 2318 2321 2324 2327 2330 2333 2336 2339 2342 2345 2348 2351 2354 2357 2360 2363 2366 2369 2372 2375 2378 2381 2384 2387 2390 2393 2396 2399 2402 2405 2408 2411 2414 2417 2420 2423 2426 2429 2432 2435 2438 2441 2444 2447 2450 2453 2456 2459 2462 2465 2468 2471 2474 2477 2480 2483 2486 2489 2492 2495 2498 2501 2504 2507 2510 2513 2516 2519 2522 2525 2528 2531 2534 2537 2540 2543 2546 2549 2552 2555 2558 2561 2564 2567 2570 2573 2576 2579 2582 2585 2588 2591 2594 2597 2600 2603 2606 2609 2612 2615 2618 2621 2624 2627 2630 2633 2636 2639 2642 2645 2648 2651 2654 2657 2660 2663 2666 2669 2672 2675 2678 2681 2684 2687 2690 2693 2696 2699 2702 2705 2708 2711 2714 2717 2720 2723 2726 2729 2732 2735 2738 2741 2744 2747 2750 2753 2756 2759 2762 2765 2768 2771 2774 2777 2780 2783 2786 2789 2792 2795 2798 2801 2804 2807 2810 2813 2816 2819 2822 2825 2828 2831 2834 2837 2840 2843 2846 2849 2852 2855 2858 2861 2864 2867 2870 2873 2876 2879 2882 2885 2888 2891 2894 2897 2900 2903 2906 2909 2912 2915 2918 2921 2924 2927 2930 2933 2936 2939 2942 2945 2948 2951 2954 2957 2960 2963 2966 2969 2972 2975 2978 2981 2984 2987 2990 2993 2996 2999 3002 3005 3008 3011 3014 3017 3020 3023 3026 3029 3032 3035 3038 3041 3044 3047 3050 3053 3056 3059 3062 3065 3068 3071 3074 3077 3080 3083 3086 3089 3092 3095 3098 3101 3104 3107 3110 3113 3116 3119 3122 3125 3128 3131 3134 3137 3140 3143 3146 3149 3152 3155 3158 3161 3164 3167 3170 3173 3176 3179 3182 3185 3188 3191 3194 3197 3200 3203 3206 3209 3212 3215 3218 3221 3224 3227 3230 3233 3236 3239 3242 3245 3248 3251 3254 3257 3260 3263 3266 3269 3272 3275 3278 3281 3284 3287 3290 3293 3296 3299 3302 3305 3308 3311 3314 3317 3320 3323 3326 3329 3332 3335 3338 3341 3344 3347 3350 3353 3356 3359 3362 3365 3368 3371 3374 3377 3380 3383 3386 3389 3392 3395 3398 3401 3404 3407 3410 3413 3416 3419 3422 3425 3428 3431 3434 3437 3440 3443 3446 3449 3452 3455 3458 3461 3464 3467 3470 3473 3476 3479 3482 3485 3488 3491 3494 3497 3500 3503 3506 3509 3512 3515 3518 3521 3524 3527 3530 3533 3536 3539 3542 3545 3548 3551 3554 3557 3560 3563 3566 3569 3572 3575 3578 3581 3584 3587 3590 3593 3596 3599 3602 3605 3608 3611 3614 3617 3620 3623 3626 3629 3632 3635 3638 3641 3644 3647 3650 3653 3656 3659 3662 3665 3668 3671 3674 3677 3680 3683 3686 3689 3692 3695 3698 3701 3704 3707 3710 3713 3716 3719 3722 3725 3728 3731 3734 3737 3740 3743 3746 3749 3752 3755 3758 3761 3764 3767 3770 3773 3776 3779 3782 3785 3788 3791 3794 3797 3800 3803 3806 3809 3812 3815 3818 3821 3824 3827 3830 3833 3836 3839 3842 3845 3848 3851 3854 3857 3860 3863 3866 3869 3872 3875 3878 3881 3884 3887 3890 3893 3896 3899 3902 3905 3908 3911 3914 3917 3920 3923 3926 3929 3932 3935 3938 3941 3944 3947 3950 3953 3956 3959 3962 3965 3968 3971 3974 3977 3980 3983 3986 3989 3992 3995 3998 4001 4004 4007 4010 4013 4016 4019 4022 4025 4028 4031 4034 4037 4040 4043 4046 4049 4052 4055 4058 4061 4064 4067 4070 4073 4076 4079 4082 4085 4088 4091 4094 4097 4100 4103 4106 4109 4112 4115 4118 4121 4124 4127 4130 4133 4136 4139 4142 4145 4148 4151 4154 4157 4160 4163 4166 4169 4172 4175 4178 4181 4184 4187 4190 4193 4196 4199 4202 4205 4208 4211 4214 4217 4220 4223 4226 4229 4232 4235 4238 4241 4244 4247 4250 4253 4256 4259 4262 4265 4268 4271 4274 4277 4280 4283 4286 4289 4292 4295 4298 4301 4304 4307 4310 4313 4316 4319 4322 4325 4328 4331 4334 4337 4340 4343 4346 4349 4352 4355 4358 4361 4364 4367 4370 4373 4376 4379 4382 4385 4388 4391 4394 4397 4400 4403 4406 4409 4412 4415 4418 4421 4424 4427 4430 4433 4436 4439 4442 4445 4448 4451 4454 4457 4460 4463 4466 4469 4472 4475 4478 4481 4484 4487 4490 4493 4496 4499 4502 4505 4508 4511 4514 4517 4520 4523 4526 4529 4532 4535 4538 4541 4544 4547 4550 4553 4556 4559 4562 4565 4568 4571 4574 4577 4580 4583 4586 4589 4592 4595 4598 4601 4604 4607 4610 4613 4616 4619 4622 4625 4628 4631 4634 4637 4640 4643 4646 4649 4652 4655 4658 4661 4664 4667 4670 4673 4676 4679 4682 4685 4688 4691 4694 4697 4700 4703 4706 4709 4712 4715 4718 4721 4724 4727 4730 4733 4736 4739 4742 4745 4748 4751 4754 4757 4760 4763 4766 4769 4772 4775 4778 4781 4784 4787 4790 4793 4796 4799 4802 4805 4808 4811 4814 4817 4820 4823 4826 4829 4832 4835 4838 4841 4844 4847 4850 4853 4856 4859 4862 4865 4868 4871 4874 4877 4880 4883 4886 4889 4892 4895 4898 4901 4904 4907 4910 4913 4916 4919 4922 4925 4928 4931 4934 4937 4940 4943 4946 4949 4952 4955 4958 4961 4964 4967 4970 4973 4976 4979 4982 4985 4988 4991 4994 4997 5000 5003 5006 5009 5012 5015 5018 5021 5024 5027 5030 5033 5036 5039 5042 5045 5048 5051 5054 5057 5060 5063 5066 5069 5072 5075 5078 5081 5084 5087 5090 5093 5096 5099 5102 5105 5108 5111 5114 5117 5120 5123 5126 5129 5132 5135 5138 5141 5144 5147 5150 5153 5156 5159 5162 5165 5168 5171 5174 5177 5180 5183 5186 5189 5192 5195 5198 5201 5204 5207 5210 5213 5216 5219 5222 5225 5228 5231 5234 5237 5240 5243 5246 5249 5252 5255 5258 5261 5264 5267 5270 5273 5276 5279 5282 5285 5288 5291 5294 5297 5300 5303 5306 5309 5312 5315 5318 5321 5324 5327 5330 5333 5336 5339 5342 5345 5348 5351 5354 5357 5360 5363 5366 5369 5372 5375 5378 5381 5384 5387 5390 5393 5396 5399 5402 5405 5408 5411 5414 5417 5420 5423 5426 5429 5432 5435 5438 5441 5444 5447 5450 5453 5456 5459 5462 5465 5468 5471 5474 5477 5480 5483 5486 5489 5492 5495 5498 5501 5504 5507 5510 5513 5516 5519 5522 5525 5528 5531 5534 5537 5540 5543 5546 5549 5552 5555 5558 5561 5564 5567 5570 5573 5576 5579 5582 5585 5588 5591 5594 5597 5600 5603 5606 5609 5612 5615 5618 5621 5624 5627 5630 5633 5636 5639 5642 5645 5648 5651 5654 5657 5660 5663 5666 5669 5672 5675 5678 5681 5684 5687 5690 5693 5696 5699 5702 5705 5708 5711 5714 5717 5720 5723 5726 5729 5732 5735 5738 5741 5744 5747 5750 5753 5756 5759 5762 5765 5768 5771 5774 5777 5780 5783 5786 5789 5792 5795 5798 5801 5804 5807 5810 5813 5816 5819 5822 5825 5828 5831 5834 5837 5840 5843 5846 5849 5852 5855 5858 5861 5864 5867 5870 5873 5876 5879 5882 5885 5888 5891 5894 5897 5900 5903 5906 5909 5912 5915 5918 5921 5924 5927 5930 5933 5936 5939 5942 5945 5948 5951 5954 5957 5960 5963 5966 5969 5972 5975 5978 5981 5984 5987 5990 5993 5996 5999 6002 6005 6008 6011 6014 6017 6020 6023 6026 6029 6032 6035 6038 6041 6044 6047 6050 6053 6056 6059 6062 6065 6068 6071 6074 6077 6080 6083 6086 6089 6092 6095 6098 6101 6104 6107 6110 6113 6116 6119 6122 6125 6128 6131 6134 6137 6140 6143 6146 6149 6152 6155 6158 6161 6164 6167 6170 6173 6176 6179 6182 6185 6188 6191 6194 6197 6200 6203 6206 6209 6212 6215 6218 6221 6224 6227 6230 6233 6236 6239 6242 6245 6248 6251 6254 6257 6260 6263 6266 6269 6272 6275 6278 6281 6284 6287 6290 6293 6296 6299 6302 6305 6308 6311 6314 6317 6320 6323 6326 6329 6332 6335 6338 6341 6344 6347 6350 6353 6356 6359 6362 6365 6368 6371 6374 6377 6380 6383 6386 6389 6392 6395 6398 6401 6404 6407 6410 6413 6416 6419 6422 6425 6428 6431 6434 6437 6440 6443 6446 6449 6452 6455 6458 6461 6464 6467 6470 6473 6476 6479 6482 6485 6488 6491 6494 6497 6500 6503 6506 6509 6512 6515 6518 6521 6524 6527 6530 6533 6536 6539 6542 6545 6548 6551 6554 6557 6560 6563 6566 6569 6572 6575 6578 6581 6584 6587 6590 6593 6596 6599 6602 6605 6608 6611 6614 6617 6620 6623 6626 6629 6632 6635 6638 6641 6644 6647 6650 6653 6656 6659 6662 6665 6668 6671 6674 6677 6680 6683 6686 6689 6692 6695 6698 6701 6704 6707 6710 6713 6716 6719 6722 6725 6728 6731 6734 6737 6740 6743 6746 6749 6752 6755 6758 6761 6764 6767 6770 6773 6776 6779 6782 6785 6788 6791 6794 6797 6800 6803 6806 6809 6812 6815 6818 6821 6824 6827 6830 6833 6836 6839 6842 6845 6848 6851 6854 6857 6860 6863 6866 6869 6872 6875 6878 6881 6884 6887 6890 6893 6896 6899 6902 6905 6908 6911 6914 6917 6920 6923 6926 6929 6932 6935 6938 6941 6944 6947 6950 6953 6956 6959 6962 6965 6968 6971 6974 6977 6980 6983 6986 6989 6992 6995 6998 7001 7004 7007 7010 7013 7016 7019 7022 7025 7028 7031 7034 7037 7040 7043 7046 7049 7052 7055 7058 7061 7064 7067 7070 7073 7076 7079 7082 7085 7088 7091 7094 7097 7100 7103 7106 7109 7112 7115 7118 7121 7124 7127 7130 7133 7136 7139 7142 7145 7148 7151 7154 7157 7160 7163 7166 7169 7172 7175 7178 7181 7184 7187 7190 7193 7196 7199 7202 7205 7208 7211 7214 7217 7220 7223 7226 7229 7232 7235 7238 7241 7244 7247 7250 7253 7256 7259 7262 7265 7268 7271 7274 7277 7280 7283 7286 7289 7292 7295 7298 7301 7304 7307 7310 7313 7316 7319 7322 7325 7328 7331 7334 7337 7340 7343 7346 7349 7352 7355 7358 7361 7364 7367 7370 7373 7376 7379 7382 7385 7388 7391 7394 7397 7400 7403 7406 7409 7412 7415 7418 7421 7424 7427 7430 7433 7436 7439 7442 7445 7448 7451 7454 7457 7
```

```
4.0K  ./etc
4.0K  ./bin
4.0K  ./sbin
4.0K  ./games
4.0K  ./share/man/man5
4.0K  ./share/man/man1x
4.0K  ./share/man/man6
4.0K  ./share/man/man8
4.0K  ./share/man/man5x
4.0K  ./share/man/man2x
4.0K  ./share/man/man4x
4.0K  ./share/man/man9x
4.0K  ./share/man/man6
4.0K  ./share/man/man7
4.0K  ./share/man/man3
4.0K  ./share/man/man6x
4.0K  ./share/man/man3x
4.0K  ./share/man/man4
4.0K  ./share/man/man1
4.0K  ./share/man/man8x
4.0K  ./share/man/man7x
4.0K  ./share/man/man2
4.0K  ./share/man/man9
80K   ./share/man
8.0K  ./share/applications
4.0K  ./share/info
96K   ./share
4.0K  ./lib
4.0K  ./libexec
4.0K  ./include
4.0K  ./src
4.0K  ./lib64/bpf
8.0K  ./lib64
140K  .
```

DIFF

This command displays the differences in the files by comparing the files line by line.
Symbols are:

- a** for add
- c** for change
- d** for delete

`diff first.txt second.txt`

`2,3d1`
`< mv`
`< comm`

```
4a3,4
> diff
> comm
```

2,3d1 means from line 2 to 3 in file 1 needs to be deleted to match line 1 of the second file.
4a2,3 means that line 4 in file 1 need to add lines 3 and 4 from the second file.
diff -c first.txt second.txt

```
*** first.txt  Mon Feb  8 16:28:26 2021
--- second.txt Mon Feb  8 16:28:38 2021
*****
*** 1,4 ****
   cat
- mv
- comm
  cp
--- 1,4 ----
  cat
  cp
+ diff
+ comm
```

ALIAS

Aliases are custom shortcuts to Linux commands. Some aliases are provided by out-of-the-box:
alias

```
l='ls -lah'
la='ls -lAh'
ll='ls -lh'
ls='ls -G'
lsa='ls -lah'
md='mkdir -p'
```

To create custom aliases:
alias k=kubectl

PING

ping checks network connectivity issues by sending one or more ICMP Echo Request packages to a specified destination IP.
ping google.com

```
PING google.com (216.58.211.238): 56 data bytes
64 bytes from 216.58.211.238: icmp_seq=0 ttl=116 time=10.584 ms
64 bytes from 216.58.211.238: icmp_seq=1 ttl=116 time=11.002 ms
64 bytes from 216.58.211.238: icmp_seq=2 ttl=116 time=10.802 ms
```

ping -c 2 google.com # sends only 2 packets

ping -w 25 google.com # sends packets during 25 seconds

ping -i 0.5 google.com # sends packets with an interval of 0.5 seconds

TRACEROUTE

traceroute elicits a response from the router at each hop from your computer to the destination.

tracert google.com

```
1 192.168.1.1 (192.168.1.1) 0.708 ms 0.479 ms 1.094 ms
2 239.red-81-46-38.customer.xxxxxxxxxx.net (81.46.38.239) 2.685 ms 1.551 ms 2.544 ms
3 166.red-81-46-45.customer.xxxxxxxxxx.net (81.46.45.166) 10.314 ms 12.277 ms 13.097 ms
4 * 241.red-81-46-45.customer.xxxxxxxxxx.net (81.46.45.241) 26.055 ms 15.976 ms
5 * * *
6 176.52.253.93 (176.52.253.93) 10.825 ms 10.848 ms 11.337 ms
7 72.14.211.154 (72.14.211.154) 11.168 ms
  5.53.1.74 (5.53.1.74) 10.799 ms
  72.14.211.154 (72.14.211.154) 11.604 ms
8 * * *
9 108.170.253.241 (108.170.253.241) 12.260 ms
  142.250.62.202 (142.250.62.202) 12.149 ms
  209.85.142.100 (209.85.142.100) 11.195 ms
10 108.170.253.247 (108.170.253.247) 13.657 ms
  108.170.253.229 (108.170.253.229) 13.035 ms
  74.125.253.197 (74.125.253.197) 11.983 ms
11 mad07s09-in-f14.1e100.net (172.217.17.14) 10.121 ms
  74.125.37.217 (74.125.37.217) 11.999 ms
  mad07s09-in-f14.1e100.net (172.217.17.14) 10.890 ms
```

NSLOOKUP

nslookup displays DNS details.

nslookup google.com

Server: 80.58.61.254

Address: 80.58.61.254#53

Non-authoritative answer:

Name: google.com

Address: 216.58.211.238

HOSTNAME

hostname shows the computer's hostname and domain name.

hostname

localhost.localdomain

hostname -I # display all the network addresses

10.0.2.15

HISTORY

history command shows all of the last commands that have been recently used.

history

9982 pwd

9983 cd ..

9984 cd tmp9

9985 vi first.txt

9986 vi second.txt

9987 diff first.txt second.txt

9988 diff -c first.txt second.txt

9989 ping google.com

```
9990 uname -a
9991 traceroute
9992 traceroute google.com
9993 ll
9994 alias
9995 finger
9996 groups
9997 nslookup google.com
9998 sestatus
9999 hostname -d
10000 hostname -A
10001 code .
```

You can run any of the commands by appending exclamation (!) to the number of the command (i.e !9982 runs `pwd`).

UNAME

`uname` displays basic information about the operating system and hardware.

```
uname
Linux
```

```
uname -a
Linux localhost.localdomain 5.8.15-301.fc33.x86_64 # SMP Thu Oct 15 16:58:06 UTC 2020 x86_64 x86_64 x86_64 GNU/Linux
```

SESTATUS

`sestatus` shows the current status of the SELinux.

```
sestatus
```

```
SELinux status:      enabled
SELinuxfs mount:     /sys/fs/selinux
SELinux root directory: /etc/selinux
Loaded policy name:   targeted
Current mode:        enforcing
Mode from config file: enforcing
Policy MLS status:    enabled
Policy deny_unknown status: allowed
Memory protection checking: actual (secure)
Max kernel policy version: 28
```

FINGER

`finger` shows user information of all the users logged in.

```
finger
```

Login	Name	TTY	Idle	Login Time	Office	Phone
asotobu	Alex Soto	tty2	9:51	Mon	09:26	

GROUPS

`groups` prints the names of the primary and any supplementary groups of a username or of the current process.

```
groups
```

```
osboxes wheel
```

```
groups root # set groups of a given username
```



```
root : root
```

USERADD

`useradd` command creates a new user on the Linux system.

```
sudo useradd alex
```

```
sudo useradd -m alexandra # creates the user with home directory
```

```
sudo useradd -u 1500 ada # creates the user with User Id
```

```
sudo useradd -g users alex # creates the user with Group Id
```

```
sudo useradd -g users -G wheel,developers alex # creates the user with primary and secondary groups
```

```
sudo useradd -s /usr/bin/zsh alex # creates the user with specific shell
```

```
sudo useradd -e 2019-01-22 alex # creates the user with the expiration date
```

GROUPADD

`groupadd` command creates a new group account on the Linux system.

```
sudo groupadd developers
```

```
sudo groupadd -g 1010 mygroup # creates the group with Group Id
```

```
sudo groupadd -K GID_MIN=500 -K GID_MAX=700 mygroup # creates the group overriding /etc/login.defs values
```

USERDEL

`userdel` deletes a user account and related files.

```
sudo userdel -f dev
```

```
sudo userdel -r newuser2 # user's home directory is removed
```