

tmux – A Powerful Terminal Multiplexer For Heavy Command-Line Linux User

by Magesh Maruthamuthu^[1] · Published : January 30, 2018 || Last Updated: January 30, 2018

tmux stands for terminal multiplexer, it allows users to create/enable multiple terminals (vertical & horizontal) in single window, this can be accessed and controlled easily from single window when you are working with different issues.

It uses a client-server model, which allows you to share sessions between users, also you can attach terminals to a tmux session back. We can easily move or rearrange the virtual console as per the need. Terminal sessions can freely rebound from one virtual console to another.

tmux depends on libevent and ncurses libraries. tmux offers status-line at the bottom of the screen which display information about your current tmux session such as current window number, window name, username, hostname, current time, and current date.

When tmux is started it creates a new session with a single window and displays it on screen. It allows users to create Any number of windows in the same session.

Many of us says it's similar to screen but i'm not since this offers wide range of configuration options.

Make a note: Ctrl+b is the default prefix in tmux so, to perform any action in tumx, you have to type the prefix first then required options.

Suggested Read : List Of Terminal Emulator For Linux^[2]

tmux Features

- Create any number of windows
- Create any number of panes in the single window
- It allows vertical and horizontal splits
- Detach and Re-attach window
- Server-client architecture which allows users to share sessions between users
- tmux offers wide range of configuration hacks

Suggested Read :

(#) tmate – Instantly Share Your Terminal Session To Anyone In Seconds^[3]

(#) Teleconsole – A Tool To Share Your Terminal Session Instantly To Anyone In Seconds^[4]

How to Install tmux Command

tmux command is pre-installed by default in most of the Linux systems. If no, follow the below procedure to get installed.

For **Debian/Ubuntu**, use APT-GET Command^[5] or APT Command^[6] to install tmux.

```
$ sudo apt install tmux
```

For **RHEL/CentOS**, use YUM Command^[7] to install tmux.

```
$ sudo yum install tmux
```

For **Fedora**, use DNF Command^[8] to install tmux.

```
$ sudo dnf install tmux
```

For **Arch Linux**, use Pacman Command^[9] to install tmux.

```
$ sudo pacman -S tmux
```

For **openSUSE**, use Zypper Command^[10] to install tmux.

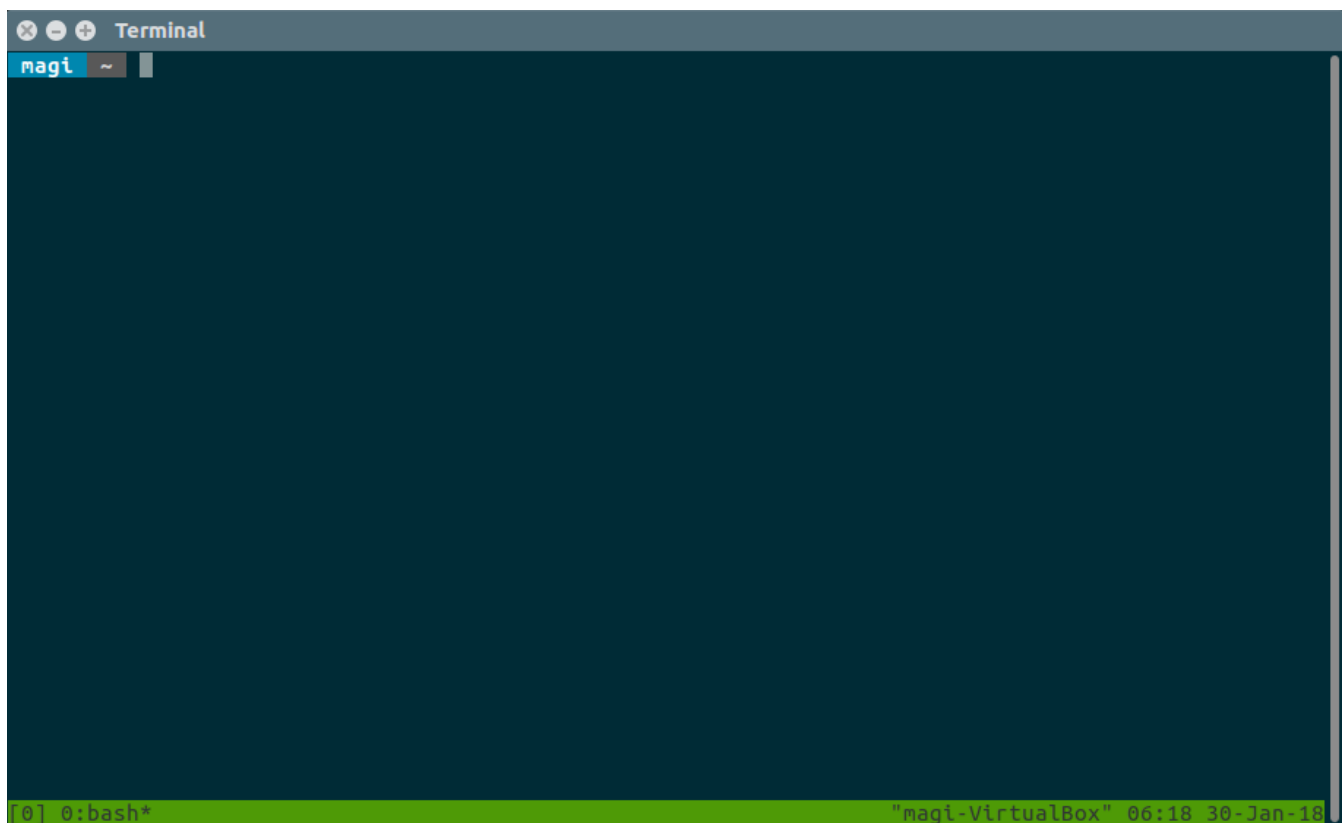
```
$ sudo zypper in tmux
```

How to Use tmux

kick start the tmux session by running following command on terminal. When tmux is started it creates a new session with a single window and will automatically login to your default shell with your user account.

```
$ tmux
```

[11]



[12]

You will get similar to above screenshot like us. tmux comes with status bar which display an information's about current sessions details, date, time, etc.,.

The status bar information's are below:

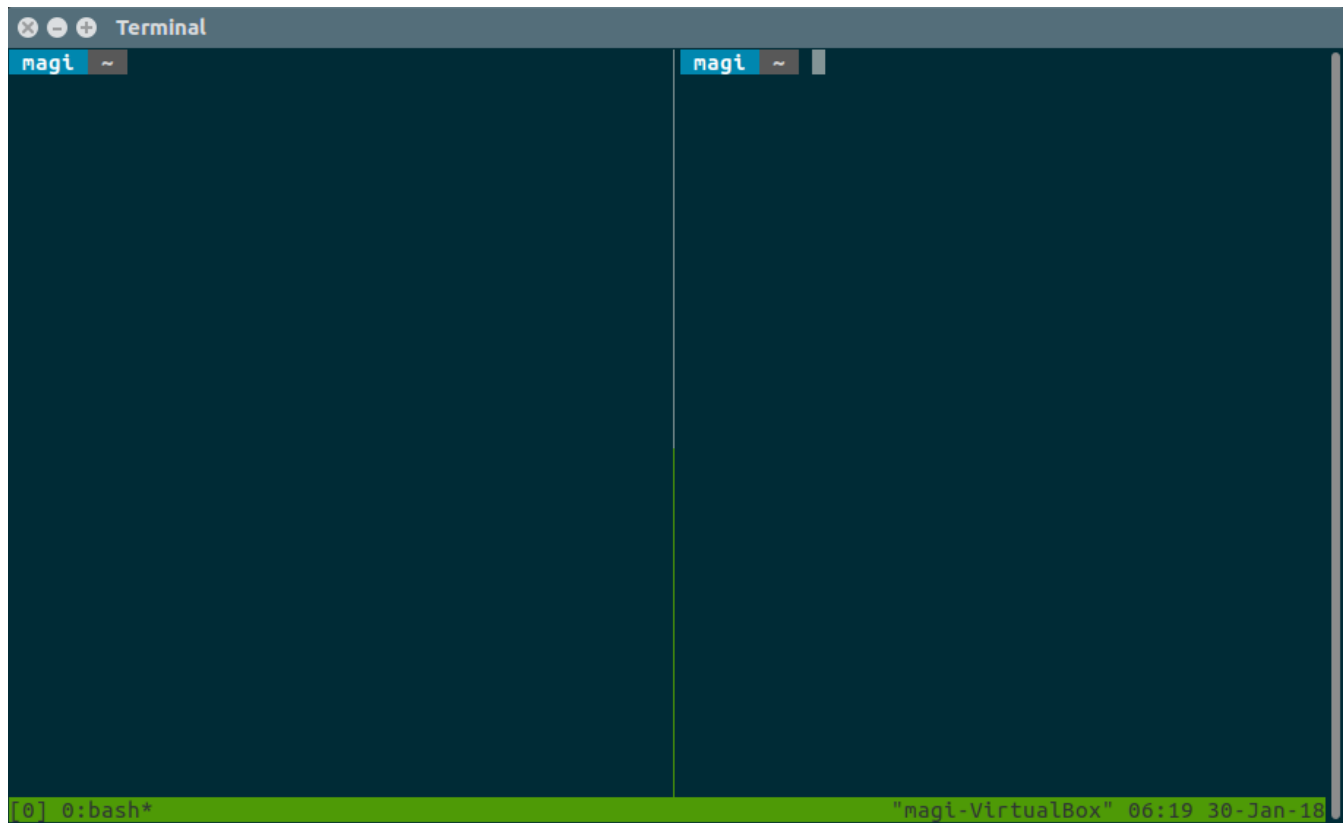
- **0** : It is indicating the session number which was created by the tmux server. By default it starts with 0.
- **0:username@host** : 0 is indicating the session number. Username and Hostname which is holding the current window.
- **~** : It is indicating the current directory (We are in the Home directory)
- ***** : This indicate that the window is active now.
- **Hostname** : This shows fully qualified hostname of the server
- **Date & Time**: It shows current date and time

How to Split Window

tmux allows users to split window vertically and horizontally. Let's see how to do that.

Press (Ctrl+b), % to split the pane vertically.

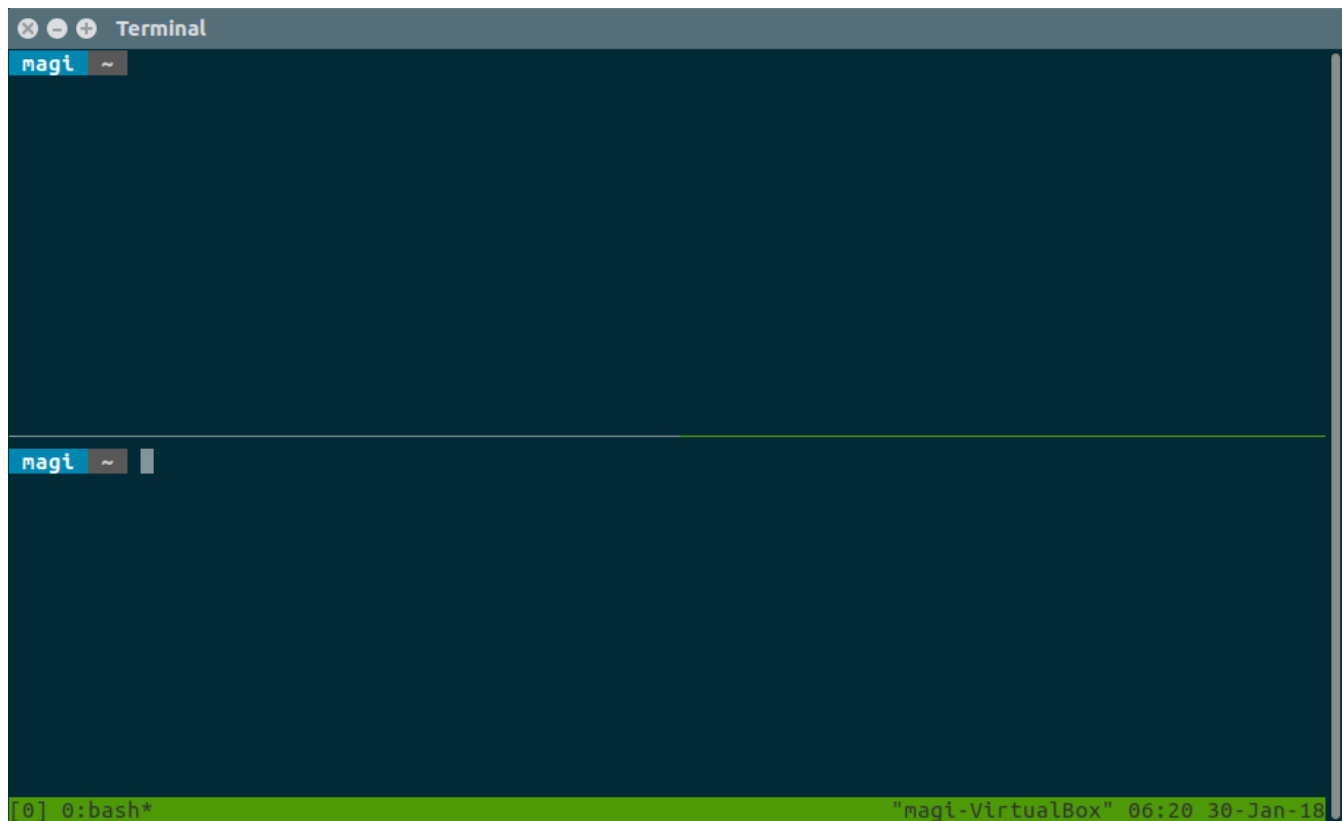
[13]



[14]

Press (Ctrl+b), " to split the pane horizontally.

[15]



[16]

How to Move Between Panes

Lets say, we have created few panes and want to move between them. How to do that? If you don't know how to do, then there is no purpose to use tmux. Use the following control keys to perform the actions. There are many ways to move between panes.

Press (Ctrl+b), Left arrow – To Move Left

Press (Ctrl+b), Right arrow – To Move Right

Press (Ctrl+b), Up arrow – To Move Up

Press (Ctrl+b), Down arrow – To Move Down

Press (Ctrl+b), { – To Move Left

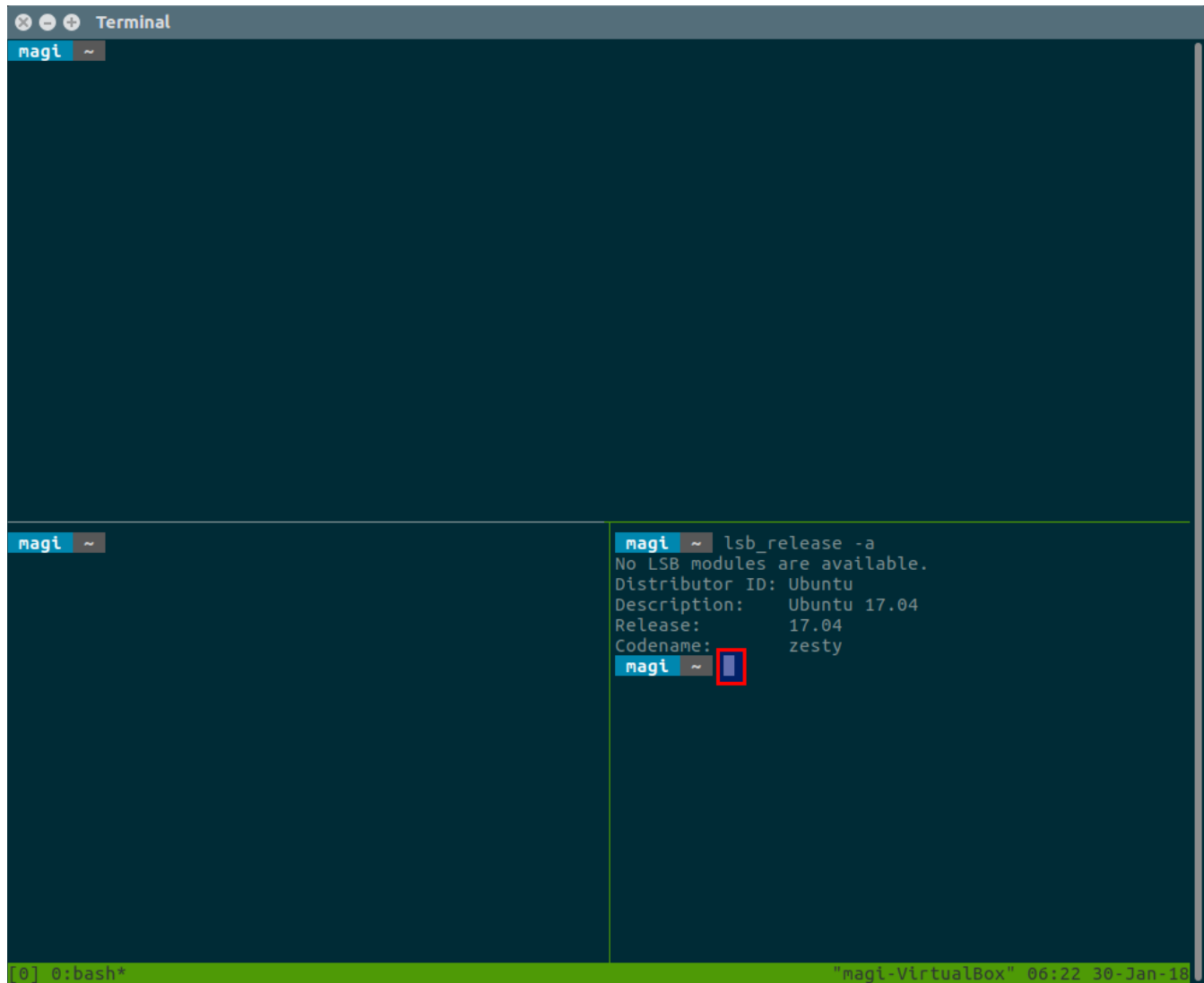
Press (Ctrl+b), } – To Move Right

Press (Ctrl+b), o – Switch to next pane (left-to-right, top-down)

Press (Ctrl+b), ; – Move to the previously active pane.

For testing purpose, we are going to move between panes. Now, we are in the pane2 which shows `lsb_release -a` command output.

[17]



```
magi ~  
  
magi ~  
magi ~ lsb_release -a  
No LSB modules are available.  
Distributor ID: Ubuntu  
Description:   Ubuntu 17.04  
Release:      17.04  
Codename:     zesty  
magi ~
```

[0] 0:bash* "magi-VirtualBox" 06:22 30-Jan-18

[18]

And we are going to move to `pane0` which shows `uname -a` command output.

[19]



```
Terminal
magi ~ uname -a
Linux magi-VirtualBox 4.10.0-38-generic #42-Ubuntu SMP Tue Oct 10 13:24:27 UTC 2017 x86_64 x86_64 x86_64 GNU/
Linux
magi ~

magi ~
magi ~ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:   Ubuntu 17.04
Release:      17.04
Codename:     zesty
magi ~
```

[0] 0:bash* "magi-VirtualBox" 06:22 30-Jan-18

[20]

How to Open/Create New Window

You can open any number of windows within one terminal. Terminal window can be split vertically & horizontally which is called panes. Each pane will contain its own, independently running terminal instance.

Press (Ctrl+b), c to create a new window.

Press (Ctrl+b), n move to the next window.

Press (Ctrl+b), p to move to the previous window.

Press (Ctrl+b), (0-9) to immediately move to a specific window.

Press (Ctrl+b), 1 Move to the previously selected window.

I have two windows, first window has three panes which contains operating system distribution information, top command output & kernal information.

[21]

```

Terminal
magi ~ uname -a
Linux magi-VirtualBox 4.10.0-38-generic #42-Ubuntu SMP Tue Oct 10 13:24:27 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
magi ~

top - 06:44:59 up 28 min, 7 users, load average: 0.01
Tasks: 193 total, 1 running, 192 sleeping, 0 stoppe
%Cpu(s): 13.9 us, 1.9 sy, 0.0 ni, 84.2 id, 0.0 wa,
KiB Mem : 2045788 total, 139000 free, 1083240 used,
KiB Swap: 1459804 total, 1459804 free, 0 used.

```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU
2362	magi	20	0	1744976	311032	80452	S	25.9
1033	root	20	0	538912	117924	40052	S	5.0
2375	magi	20	0	661264	38804	26572	S	2.7
2861	magi	20	0	972784	121036	38756	S	1.3
2487	magi	20	0	937424	69552	47520	S	0.7
7	root	20	0	0	0	0	S	0.3
2051	magi	20	0	370332	9500	7284	S	0.3
2076	magi	20	0	494016	35152	25824	S	0.3
2683	magi	20	0	685544	39612	28976	S	0.3
4043	magi	20	0	44524	3904	3328	R	0.3
1	root	20	0	139612	7536	5440	S	0.0
2	root	20	0	0	0	0	S	0.0
3	root	20	0	0	0	0	S	0.0
4	root	0	-20	0	0	0	S	0.0

```

magi ~ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description: Ubuntu 17.04
Release: 17.04
Codename: zesty
magi ~

[0] 0:top* 1:bach- 2:bach "magi-VirtualBox" 06:44 30-Jan-18

```

[22]

And second window has two panes which contains Linux distributions logo information. Use the following commands perform the action.

[23]

```

Terminal
magi ~ neofetch
      .-/+00ssssso+/-.
      `:+ssssssssssssssss+:`
      -+ssssssssssssssssyyssss+-
      .ossssssssssssssssdMMMMyssso.
      /ssssssssshdmmNNmyNNMMHsssss/
      +ssssssshmydMMMMMMNdddysssss+
      /ssssssshNMMMyhhyyyhNMMNHsssss/
      .sssssssdMMMNhssssssshNMMMdssssss.
      +ssshhhyNMMNysssssssssyNMMMyssss+
      ossyNMMMNyMMHssssssssshmmhssssso
      ossyNMMMNyMMHssssssssshmmhssssso
      +ssshhhyNMMNysssssssssyNMMMyssss+
      .sssssssdMMMNhssssssshNMMMdssssss.
      /ssssssshNMMMyhhyyyhNMMNHsssss/
      +sssssssdmydMMMMMMNdddysssss+
      /ssssssshdmmNNNmyNNMMHsssss/
      .ossssssssssssssdMMMMyssso.
      -+ssssssssssssssssyyssss+-
      `:+ssssssssssssssss+:`
      .-/+00ssssso+/-.

magi@magi-
-----
OS: Ubuntu
Model: Vir
Kernel: 4.
Uptime: 13
Shell: bas
Resolution
DE: Unity:
WM: Compiz
WM Theme:
Theme: Pap
Icons: Vam
CPU: Intel
GPU: Virtu
Memory: 10

magi ~ neofetch --ASCII_distro gentoo
      -/oyddmdhs+:/-
      -odNNNNNNNNNNNNmhy+-`
      -yNNNNNNNNNNNNNNmdhy+-
      `omNNNNNNNNNNNNNmdmmddhhy/`
      omNNNNNNNNNNNNhhyyyohndddhhd`
      .ydNNNNNNNNNNMds++so/smdddhhdmm+`
      oyhdNMMNNNNNNNNdyooydmdddhhyhNd.
      :oyhdNMMNNNNNNNNNmdddhhyymMh
      .+:sydNNNNNNNNNNmdddhhyhmMMy
      /mNNNNNNNNNNNmdddhhyhmMNs:
      `oNNNNNNNNNNNmdddhhdmmNhs+`
      `sNNNNNNNNNNNmddddmNMhs/.
      /NNNNNNNNNNNmdddmNMNdso:-
      +MMNNNNNNNNNNmdmNMNdso/-
      yMMNNNNNNNNNNmmmmNMhs+/-`
      /hMMNNNNNNNNMds++/-`
      `/ohdmdhys+++/:-
      `-/++++:--.

magi@magi-Virtu
-----
OS: Ubuntu 17.0
Model: VirtualB
Kernel: 4.10.0-
Uptime: 14 mins
Shell: bash 4.4
Resolution: 192
DE: Unity:Unity
WM: Compiz
WM Theme: Paper
Theme: Paper [G
Icons: Vamox-ja
CPU: Intel i7-6
GPU: VirtualBox
Memory: 1029MiB

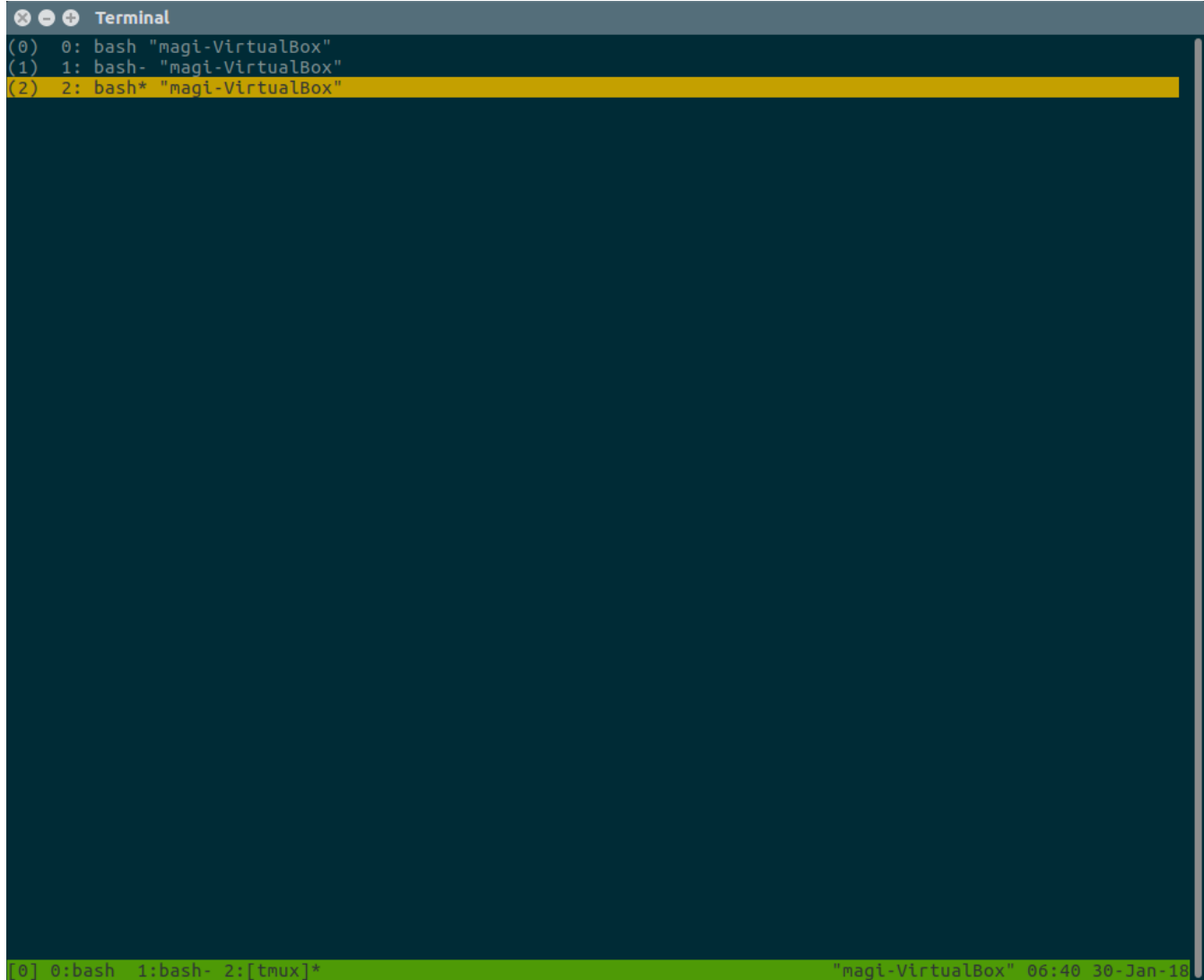
[0] 0:bash- 1:bash* "magi-VirtualBox" 06:30 30-Jan-18

```

[24]

Press (Ctrl+b), w Choose the current window interactively.

[25]



```
(0) 0: bash "magi-VirtualBox"
(1) 1: bash- "magi-VirtualBox"
(2) 2: bash* "magi-VirtualBox"

[0] 0: bash 1: bash- 2: [tmux]* "magi-VirtualBox" 06:40 30-Jan-18
```

[26]

How to Zoom Panes

You are working in some pane which is very small and you want to zoom it out for further work. To do use the following key binds.

Currently we have three panes and i'm working in `pane1` which shows system activity using **Top** command and am going to zoom that.

[27]

The screenshot shows a tmux terminal window with a dark blue background. The title bar at the top says "Terminal". The prompt is "magi ~". The user has run the command `uname -a`, which displays the following information:

```
Linux magi-VirtualBox 4.10.0-38-generic #42-Ubuntu SMP Tue Oct 10 13:24:27 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
```

The user then runs `top`, which displays system statistics and a list of processes. The statistics show:

```
top - 06:44:59 up 28 min, 7 users, load average: 0.01
Tasks: 193 total, 1 running, 192 sleeping, 0 stoppe
%Cpu(s): 13.9 us, 1.9 sy, 0.0 ni, 84.2 id, 0.0 wa,
KiB Mem : 2045788 total, 139000 free, 1083240 used,
KiB Swap: 1459804 total, 1459804 free, 0 used.
```

The process list shows the following columns: PID, USER, PR, NI, VIRT, RES, SHR, S, %CPU. The processes are sorted by CPU usage, with the top process being PID 4043, USER magi, PR 20, NI 0, VIRT 44524, RES 3904, SHR 3328, S R, %CPU 0.3.

The user then runs `lsb_release -a`, which displays the following information:

```
No LSB modules are available.
Distributor ID: Ubuntu
Description: Ubuntu 17.04
Release: 17.04
Codename: zesty
```

The terminal window has a status bar at the bottom that says "[0] 0:top* 1:bash- 2:bash" and "magi-VirtualBox" 06:44 30-Jan-18.

[28]

When you zoom a pane, it will hide all other panes and display only the zoomed pane in the window.

[29]

```

Terminal
top - 06:45:12 up 29 min, 7 users, load average: 0.00, 0.26, 0.26
Tasks: 193 total, 1 running, 192 sleeping, 0 stopped, 0 zombie
%Cpu(s): 5.5 us, 0.9 sy, 0.0 ni, 93.6 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 2045788 total, 135436 free, 1086324 used, 824028 buff/cache
KiB Swap: 1459804 total, 1459804 free, 0 used. 779536 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM     TIME+ COMMAND
 2362 magi      20   0 1744976 311032 80452 S   13.9  15.2   7:56.38 /usr/bin/compiz
1033  root       20   0 538912 118004 40088 S    3.0   5.8   0:40.00 /usr/lib/xorg/Xorg -core :0 -seat seat0+
2375  magi      20   0 661540 390600 26572 S    0.7   1.9   0:06.12 /usr/lib/x86_64-linux-gnu/unity/unity-p+
1041 www-data  20   0 369496  6476  2844 S    0.3   0.3   0:00.61 /usr/sbin/apache2 -k start
2102 magi      20   0 213076  8176  7404 S    0.3   0.4   0:00.66 /usr/lib/ibus/ibus-engine-simple
2487 magi      20   0 937424 69552 47520 S    0.3   3.4   0:01.87 nautilus -n
2683 magi      20   0 685544 39612 28976 S    0.3   1.9   0:04.39 /usr/lib/gnome-terminal/gnome-terminal-+
2741 magi      20   0 30000  3688  2952 S    0.3   0.2   0:00.61 tmux
4043 magi      20   0 44696  3904  3328 R    0.3   0.2   0:00.12 top -c
   1  root      20   0 139612  7536  5440 S    0.0   0.4   0:02.12 /sbin/init splash
   2  root      20   0 0 0 0 S    0.0   0.0   0:00.00 [kthreadd]
   3  root      20   0 0 0 0 S    0.0   0.0   0:00.16 [kworker/0:0]
   4  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [kworker/0:0H]
   6  root      20   0 0 0 0 S    0.0   0.0   0:00.10 [ksoftirqd/0]
   7  root      20   0 0 0 0 S    0.0   0.0   0:00.59 [rcu_sched]
   8  root      20   0 0 0 0 S    0.0   0.0   0:00.00 [rcu_bh]
   9  root      rt   0 0 0 0 S    0.0   0.0   0:00.00 [migration/0]
  10  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [lru-add-drain]
  11  root      rt   0 0 0 0 S    0.0   0.0   0:00.01 [watchdog/0]
  12  root      20   0 0 0 0 S    0.0   0.0   0:00.00 [cpuhp/0]
  13  root      20   0 0 0 0 S    0.0   0.0   0:00.00 [cpuhp/1]
  14  root      rt   0 0 0 0 S    0.0   0.0   0:00.00 [watchdog/1]
  15  root      rt   0 0 0 0 S    0.0   0.0   0:00.00 [migration/1]
  16  root      20   0 0 0 0 S    0.0   0.0   0:00.12 [ksoftirqd/1]
  18  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [kworker/1:0H]
  19  root      20   0 0 0 0 S    0.0   0.0   0:00.00 [kdevtmpfs]
  20  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [netns]
  21  root      20   0 0 0 0 S    0.0   0.0   0:00.00 [khungtaskd]
  22  root      20   0 0 0 0 S    0.0   0.0   0:00.00 [oom_reaper]
  23  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [writeback]
  24  root      20   0 0 0 0 S    0.0   0.0   0:00.00 [kcompactd0]
  25  root      25   5 0 0 0 S    0.0   0.0   0:00.00 [ksmd]
  26  root      39  19 0 0 0 S    0.0   0.0   0:01.35 [khugepaged]
  27  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [crypto]
  28  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [kintegrityd]
  29  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [bioset]
  30  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [kblockd]
  31  root      0 -20 0 0 0 S    0.0   0.0   0:00.00 [ata_sff]

[0] 0:top*Z 1:bash- 2:bash "magi-VirtualBox" 06:45 30-Jan-18

```

[30]

Press (Ctrl+b), z to zoom the pane and press it again, to bring the zoomed pane back.

Display Pane Information

To know about pane number and it's size, run the following command.

Press (Ctrl+b), q to briefly display pane indexes.

[31]

The screenshot shows a tmux terminal window with a dark blue background. The window title is "Terminal". The prompt is "magi ~". The command "uname -a" has been executed, showing system information: "Linux magi-VirtualBox 4.10.0-38-generic #42-Ubuntu SMP Tue Oct 10 13:24:27 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux". The window is split into two panes. The left pane shows the output of the "top" command, displaying system statistics and a list of processes. The right pane shows the output of the "lsb_release -a" command, displaying distribution information: "No LSB modules are available. Distributor ID: Ubuntu Description: Ubuntu 17.04 Release: 17.04 Codename: zesty". The window status bar at the bottom shows "[0] 0:top* 1:~ 2:~" and the window title "magi-VirtualBox" with the timestamp "06:46 30-Jan-18".

```

magi ~ uname -a
Linux magi-VirtualBox 4.10.0-38-generic #42-Ubuntu SMP Tue Oct 10 13:24:27 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
magi ~

top - 06:46:51 up 30 min, 7 users, load average:55x21
Tasks: 192 total, 1 running, 191 sleeping, 0 stoppe
%Cpu(s): 2.2 us, 0.3 sy, 0.0 ni, 97.5 id, 0.0 wa,
KiB Mem : 2045788 total, 139820 free, 1085356 used,
KiB Swap: 1459804 total, 1459804 free, 0 used.

  PID USER      PR  NI   VIRT    RES    SHR  S  %CPU
 2362 magi       20   0 1744976 311032  80452  S   4.3
10333 root        20   0 538400 118004  40088  S   0.7
   1 root        20   0 139600  7536   5440  S   0.0
   2 root        20   0 0        0        0  S   0.0
   3 root        20   0 0        0        0  S   0.0
   4 root        0 -20 0        0        0  S   0.0
   6 root        20   0 0        0        0  S   0.0
   7 root        20   0 0        0        0  S   0.0
   8 root        20   0 0        0        0  S   0.0
   9 root        rt    0 0        0        0  S   0.0
  10 root        0 -20 0        0        0  S   0.0
  11 root        rt    0 0        0        0  S   0.0
  12 root        20   0 0        0        0  S   0.0
  13 root        20   0 0        0        0  S   0.0

magi ~ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 17.04
Release:        17.04
Codename:       zesty
magi ~

```

[32]

Display Window Information

To know about window number, layout size, number of panes associated with the window and it's size, etc., run the following command.

Just run `tmux list-windows` to view window information.

[33]

```

Terminal
sessions should be nested with care, unset $TMUX to force
magi ~ clear
magi ~ uname -a
Linux magi-VirtualBox 4.10.0-38-generic #42-Ubuntu SMP Tue Oct 10 13:24:27 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
magi ~ tmux ls
0: 3 windows (created Tue Jan 30 06:17:47 2018) [109x45] (attached)
magi ~ tmux list-window
0: bash* (3 panes) [109x45] [layout 15b1,109x45,0,0[109x13,0,0,0,109x31,0,14{55x31,0,14,2,53x31,56,14,3}]] @0 (active)
1: bash (2 panes) [109x45] [layout 70a8,109x45,0,0{54x45,0,0,4,54x45,55,0,5}] @1
2: bash- (1 panes) [109x45] [layout c303,109x45,0,0,6] @2
magi ~

top - 07:42:17 up 1:26, 7 users, load average: 0.32, 0.23,
Tasks: 204 total, 2 running, 202 sleeping, 0 stopped, 0
%Cpu(s): 29.0 us, 5.6 sy, 0.0 ni, 63.0 id, 2.0 wa, 0.0 hi
Mem: 2045788 total, 86864 free, 1491148 used, 467
Mem Swap: 1459804 total, 1168516 free, 291288 used. 300
magi ~ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description: Ubuntu 17.04
Release: 17.04
Codename: zesty
magi ~

  PID USER      PR  NI   VIRT    RES    SHR  S  %CPU  %MEM
 2362 magi       20   0 1793200 268044 46948  S   27.8  13.1
2375 magi       20   0 673048  37884 13172  R    8.6   1.9
1033 root        20   0 738980 157616 48652  S    7.0   7.7
2861 magi       20   0 1045032 138632 35840  S    5.6   6.8
2863 magi       20   0 662424  30192 21988  S    2.3   1.5
2683 magi       20   0 687804 22088 12912  S    1.3   1.1
1977 magi       20   0  46560   3656  2132  S    0.7   0.2
2214 magi       20   0 465540  16108 7620  S    0.7   0.8
  16 root        20   0         0         0  0  S    0.3   0.0
2102 magi       20   0 213076   3016  2720  S    0.3   0.1
2226 magi       20   0 679564  10748  3824  S    0.3   0.5
2660 magi       20   0 331128   9360  5008  S    0.3   0.5
4043 magi       20   0 44696   3020  2244  R    0.3   0.1
4614 magi       20   0 2079608 132508 33068  S    0.3   6.5
5011 root        20   0         0         0  0  S    0.3   0.0
   1 root        20   0 139612   5188  3660  S    0.0   0.3
   2 root        20   0         0         0  0  S    0.0   0.0
   3 root        20   0         0         0  0  S    0.0   0.0
   4 root        20  -20         0         0  0  S    0.0   0.0
   6 root        20   0         0         0  0  S    0.0   0.0
   7 root        20   0         0         0  0  S    0.0   0.0
   8 root        20   0         0         0  0  S    0.0   0.0
   9 root        20   0         0         0  0  S    0.0   0.0
  10 root        20  -20         0         0  0  S    0.0   0.0

[0] 0: bash* 1: bash 2: bash-
"magi-VirtualBox" 07:42 30-Jan-18

```

[34]

How to Resize Panes

You may want to resize the panes to fit your requirement. You have to press (Ctrl+b), : then type the following details on the yellow color bar in the bottom of the page.

[35]

```

Terminal
magi ~ uname -a
Linux magi-VirtualBox 4.10.0-38-generic #42-Ubuntu SMP Tue Oct 10 13:24:27 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
magi ~

top - 06:51:31 up 35 min, 7 users, load average: 0.01
Tasks: 199 total, 1 running, 198 sleeping, 0 stoppe
%Cpu(s): 1.0 us, 0.5 sy, 0.0 ni, 98.5 id, 0.0 wa,
KiB Mem : 2045788 total, 69488 free, 1166200 used,
KiB Swap: 1459804 total, 1459044 free, 760 used.

magi ~ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description: Ubuntu 17.04
Release: 17.04
Codename: zesty
magi ~

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU
 2362 magi      20   0 1744976 311036 80456 S   2.3
 1033 root       20   0 581072 156528 40664 S   0.7
 2487 magi      20   0 1029056 86676 48996 S   0.3
 2683 magi      20   0 685544 39836 28948 S   0.3
 4043 magi      20   0 44696 3904 3328 R   0.3
    1 root       20   0 139612 7536 5440 S   0.0
    2 root       20   0      0      0      0 S   0.0
    3 root       20   0      0      0      0 S   0.0
    4 root       0 -20      0      0      0 S   0.0
    6 root       20   0      0      0      0 S   0.0
    7 root       20   0      0      0      0 S   0.0
    8 root       20   0      0      0      0 S   0.0
    9 root       rt   0      0      0      0 S   0.0
   10 root       0 -20      0      0      0 S   0.0

```

[36]

In the previous section we have print pane index which shows panes size as well. To test this we are going to increase 10 cells UPward. See the following output that has increased the pane1 & pane2 size from 55x21 to 55x31.

[37]

```

Terminal
magi ~ uname -a
Linux magi-VirtualBox 4.10.0-38-generic #42-Ubuntu SMP Tue Oct 10 13:24:27 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
magi ~

top - 06:53:03 up 36 min, 7 users, load average: 55x31
Tasks: 199 total, 1 running, 198 sleeping, 0 stopped
%Cpu(s): 33.5 us, 5.1 sy, 0.0 ni, 61.4 id, 0.0 wa,
KiB Mem : 2045788 total, 137280 free, 1169068 used,
KiB Swap: 1459804 total, 1457020 free, 2784 used.

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU
 2362 magi      20   0 1744976 311036 80456 S  55.1
 1033 root       20   0 578084 151880 40660 S  13.6
 2375 magi      20   0 663596 41644 26572 S   3.7
 2861 magi      20   0 978188 126592 38788 S   2.7
 2487 magi      20   0 1029432 87116 48996 S   1.7
 2683 magi      20   0 685544 39836 28948 S   1.0
 2599 magi      20   0 42122 22148 18680 S   0.7
 768 root       20   0 30590 10552 7608 S   0.3
 1977 magi      20   0 4644 5196 3604 S   0.3
 2051 magi      20   0 37032 9500 7284 S   0.3
 2214 magi      20   0 46550 31664 21528 S   0.3
 2286 magi      9  -11 1421188 12208 8916 S   0.3
 4043 magi      20   0 44696 3904 3328 R   0.3
    1 root       20   0 139612 7536 5440 S   0.0
    2 root       20   0 0 0 0 S   0.0
    3 root       20   0 0 0 0 S   0.0
    4 root       0 -20 0 0 0 S   0.0
    6 root       20   0 0 0 0 S   0.0
    7 root       20   0 0 0 0 S   0.0
    8 root       20   0 0 0 0 S   0.0
    9 root       rt   0 0 0 0 S   0.0
   10 root       0 -20 0 0 0 S   0.0
   11 root       rt   0 0 0 0 S   0.0
   12 root       20   0 0 0 0 S   0.0

magi ~ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description: Ubuntu 17.04
Release: 17.04
Codename: zesty
magi ~

[0] 0:top* 1:bash- 2:bash "magi-VirtualBox" 06:53 30-Jan-18

```

[38]

Syntax: (Ctrl+b), : then type `resize-pane [options] [cells size]`

(Ctrl+b), : then type `resize-pane -D 10` to resize the current pane Down for 10 cells.

(Ctrl+b), : then type `resize-pane -U 10` to resize the current pane UPward for 10 cells.

(Ctrl+b), : then type `resize-pane -L 10` to resize the current pane Left for 10 cells.

(Ctrl+b), : then type `resize-pane -R 10` to resize the current pane Right for 10 cells.

Detaching and Re-attaching tmux Session

One of the most powerful features of tmux is the ability to detach and reattach session whenever you need.

Run a long running process and press Ctrl+b followed by d to detach your tmux session safely by leaving the running process.

Suggested Read : [How To Keep A Process/Command Running After Disconnecting SSH Session](#)^[39]

Now, run a long running process. For demonstration purpose, we are going to move this server backup to another remote server for disaster recovery (DR) purpose.

```
$ rsync -avzhe ssh /backup root@192.168.0.161:/backups/week-1/
```

You will get similar output like below after detached tmux session.

```
[detached (from session 0)]
```

Run the following command to list the available tmux sessions.

```
$ tmux ls
```

```
0: 3 windows (created Tue Jan 30 06:17:47 2018) [109x45]
```

Now, re-attach the tmux session using an appropriate session ID as follow.

```
$ tmux attach -t 0
```

How to Close Panes & Window

Just type `exit` or hit `Ctrl-d` in the corresponding pane to close it. It's similar to terminal close. To close window, press `(Ctrl+b), &`.

Links

1. <https://www.2daygeek.com/author/magesh/>
2. <https://www.2daygeek.com/category/terminal-emulator/>
3. <https://www.2daygeek.com/tmate-instantly-share-your-terminal-session-to-anyone-in-seconds/>
4. <https://www.2daygeek.com/teleconsole-share-terminal-session-instantly-to-anyone-in-seconds/>
5. <https://www.2daygeek.com/apt-get-apt-cache-command-examples-manage-packages-debian-ubuntu-systems/>
6. <https://www.2daygeek.com/apt-command-examples-manage-packages-debian-ubuntu-systems/>
7. <https://www.2daygeek.com/yum-command-examples-manage-packages-rhel-centos-systems/>
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11. <https://www.2daygeek.com/wp-content/uploads/2018/01/tmux-a-powerful-terminal-multiplexer-emulator-for-linux-1.png>
12. <https://www.2daygeek.com/wp-content/uploads/2018/01/tmux-a-powerful-terminal-multiplexer-emulator-for-linux-1.png>
13. <https://www.2daygeek.com/wp-content/uploads/2018/01/tmux-a-powerful-terminal-multiplexer-emulator-for-linux-2.png>
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- 22. <https://www.2daygeek.com/wp-content/uploads/2018/01/tmux-a-powerful-terminal-multiplexer-emulator-for-linux-8.png>
- 23. <https://www.2daygeek.com/wp-content/uploads/2018/01/tmux-a-powerful-terminal-multiplexer-emulator-for-linux-6.png>
- 24. <https://www.2daygeek.com/wp-content/uploads/2018/01/tmux-a-powerful-terminal-multiplexer-emulator-for-linux-6.png>
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- 33. <https://www.2daygeek.com/wp-content/uploads/2018/01/tmux-a-powerful-terminal-multiplexer-emulator-for-linux-14.png>
- 34. <https://www.2daygeek.com/wp-content/uploads/2018/01/tmux-a-powerful-terminal-multiplexer-emulator-for-linux-14.png>
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- 38. <https://www.2daygeek.com/wp-content/uploads/2018/01/tmux-a-powerful-terminal-multiplexer-emulator-for-linux-13.png>
- 39. <https://www.2daygeek.com/how-to-keep-a-process-command-running-after-disconnecting-ssh-session/>

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