Getting Started

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Nicholas Marriott edited this page on Oct 13, 2022 · 111 revisions

Getting started

About tmux

tmux is a program which runs in a terminal and allows multiple other terminal programs to be run inside it. Each program inside tmux gets its own terminal managed by tmux, which can be accessed from the single terminal where tmux is running - this called multiplexing and tmux is a terminal multiplexer.

tmux - and any programs running inside it - may be detached from the terminal where it is running (the outside terminal) and later reattached to the same or another terminal.

Programs run inside tmux may be full screen interactive programs like *vi(1)* or *top(1)*, shells like *bash(1)* or *ksh(1)*, or any other program that can be run in a Unix terminal.

There is a powerful feature set to access, manage and organize programs inside tmux, both interactively and from scripts.

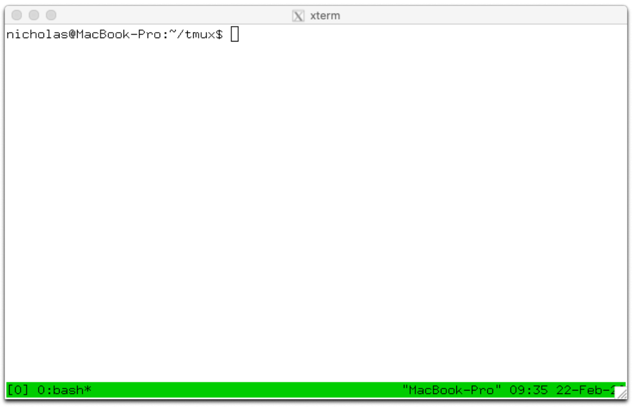
The main uses of tmux are to:

- Protect running programs on a remote server from connection drops by running them inside tmux.
- Allow programs running on a remote server to be accessed from multiple different local computers.
- Work with multiple programs and shells together in one terminal, a bit like a window manager.

For example:

- A user connects to a remote server using *ssh(1)* from an *xterm(1)* on their work computer and run several programs. perhaps an editor, a compiler and a few shells.
- They work with these programs interactively, perhaps start compiling, then close the *xterm(1)* with tmux and go home for the day.
- They are then able to connect to the same remote server from home, attach to tmux, and continue from where they were previously.

Here is a screenshot of tmux in an *xterm(1)* showing the shell:



```
nicholas@MacBook-Pro:~/tmux$
```

```
[0] 0:bash*                                    "MacBook-Pro" 09:35 22-Feb-
```

About this document

This document gives an overview of some of tmux's key concepts, a description of how to use the main features interactively and some information on basic customization and configuration.

Note that this document may mention features only available in the latest tmux release. Only the latest tmux release is supported. Releases are made approximately every six months.

tmux may be installed from package management systems on most major platforms. See this document for instructions on how to install tmux or how to build it from source.

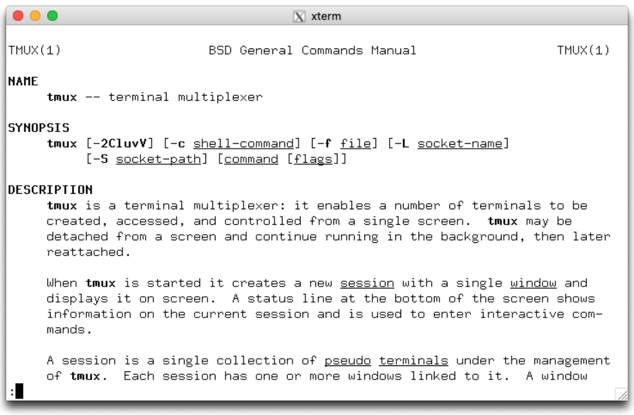
Other documentation and help

Here are several places to find documentation and help about tmux:

- The manual page has detailed reference documentation on tmux and a description of every command, flag and option. Once tmux is installed it is also available in section 1:

```
$ man 1 tmux
```

- The FAQ has solutions to commonly asked questions, mostly about specific configuration issues.
- The tmux-users@googlegroups.com mailing list.



```
TMUX(1)                  BSD General Commands Manual                  TMUX(1)

NAME
     tmux -- terminal multiplexer

SYNOPSIS
     tmux [-2CluvV] [-c shell-command] [-f file] [-L socket-name]
          [-S socket-path] [command [flags]]

DESCRIPTION
     tmux is a terminal multiplexer: it enables a number of terminals to be
     created, accessed, and controlled from a single screen.  tmux may be
     detached from a screen and continue running in the background, then later
     reattached.

     When tmux is started it creates a new session with a single window and
     displays it on screen.  A status line at the bottom of the screen shows
     information on the current session and is used to enter interactive com-
     mands.

     A session is a single collection of pseudo terminals under the management
     of tmux.  Each session has one or more windows linked to it.  A window
:
```

Basic concepts

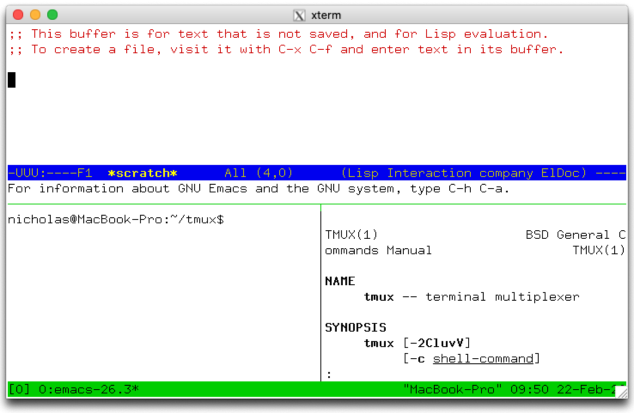
tmux has a set of basic concepts and terms it is important to be familiar with. This section gives a description of how the terminals inside tmux are grouped together and the various terms tmux uses.

The tmux server and clients

tmux keeps all its state in a single main process, called the tmux server. This runs in the background and manages all the programs running inside tmux and keeps track of their output. The tmux server is started automatically when the user runs a tmux command and by default exits when there are no running programs.

Users attach to the tmux server by starting a client. This takes over the terminal where it is run and talks to the server using a socket file in `/tmp`. Each client runs in one terminal, which may be an *X(7)* terminal such as *xterm(1)*, the system console, or a terminal inside another program (such as tmux itself). Each client is identified by the name of the outside terminal where it is started, for example `/dev/ttypf`.

Sessions, windows and panes

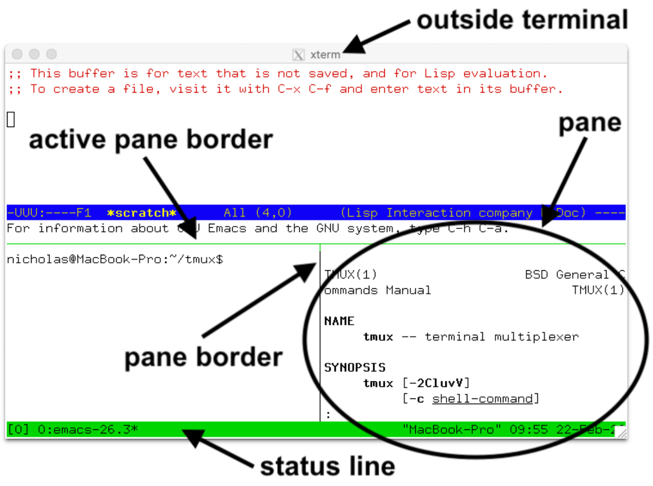


```
xterm
;; This buffer is for text that is not saved, and for Lisp evaluation.
;; To create a file, visit it with C-x C-f and enter text in its buffer.

█



-UUU:----F1  *scratch*      All (4,0)      (Lisp Interaction company ElDoc) ----
For information about GNU Emacs and the GNU system, type C-h C-a.
nicholas@MacBook-Pro:~/tmux$          |
                                      | TMUX(1)                 BSD General C
                                      | ommands Manual                TMUX(1)
                                      |
                                      | NAME
                                      |      tmux -- terminal multiplexer
                                      |
                                      | SYNOPSIS
                                      |      tmux [-2CluvV]
                                      |           [-c shell-command]
                                      | :
[0] 0:emacs-26.3*                            "MacBook-Pro" 09:50 22-Feb-2
```

Every terminal inside tmux belongs to one pane, this is a rectangular area which shows the content of the terminal inside tmux. Because each terminal inside tmux is shown in only one pane, the term pane can be used to mean all of the pane, the terminal and the program running inside it. The screenshot to the right shows tmux with panes.

Each pane appears in one window. A window is made up of one or more panes which together cover its entire area - so multiple panes may be visible at the same time. A window normally takes up the whole of the terminal where tmux is attached, but it can be bigger or smaller. The sizes and positions of all the panes in a window is called the window layout.

Every window has a name - by default tmux will choose one but it can be changed by the user. Window names do not have to be unique, windows are usually identified by the session and the window index rather than their name.



```
xterm
;; This buffer is for text that is not saved, and for Lisp evaluation.
;; To create a file, visit it with C-x C-f and enter text in its buffer.





-UUU:----F1  *scratch*      All (4,0)      (Lisp Interaction company ElDoc) ----
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nicholas@MacBook-Pro:~/tmux$          |
                                      | TMUX(1)                 BSD General C
                                      | ommands Manual                TMUX(1)
                                      |
                                      | NAME
                                      |      tmux -- terminal multiplexer
                                      |
                                      | SYNOPSIS
                                      |      tmux [-2CluvV]
                                      |           [-c shell-command]
                                      | :
[0] 0:emacs-26.3*                            "MacBook-Pro" 09:55 22-Feb-2
```

Each pane is separated from the panes around it by a line, this is called the pane border. There is one pane in each window called the active pane, this is where any text typed is sent and is the default pane used for commands that target the window. The pane border of the active pane is marked in green, or if there are only two panes then the top, bottom, left or right half of the border is green.

Multiple windows are grouped together into sessions. If a window is part of a session, it is said to be linked to that session. Windows may be linked to multiple sessions at the same time, although mostly they are only in one. Each window in a session has a number, called the window index - the same window may be linked at different indexes in different sessions. A session's window list is all the windows linked to that session in order of their indexes.

Each session has one current window, this is the window displayed when the session is attached and is the default window for any commands that target the session. If the current window is changed, the previous current window becomes known as the last window.

A session may be attached to one or more clients, which means it is shown on the outside terminal where that client is running. Any text typed into that outside terminal is sent to the active pane in the current window of the attached session. Sessions do not have an index but they do have a name, which must be unique.

In summary:

- Programs run in terminals in panes, which each belong to one window.
- Each window has a name and one active pane.
- Windows are linked to one or more sessions.
- Each session has a list of windows, each with an index.
- One of the windows in a session is the current window.
- Sessions are attached to one or more clients, or are detached (attached to no clients).
- Each client is attached to one session.

Summary of terms

Term	Description
Client	Attaches a tmux session from an outside terminal such as *xterm(1)*
Session	Groups one or more windows together
Window	Groups one or more panes together, linked to one or more sessions
Pane	Contains a terminal and running program, appears in one window
Active pane	The pane in the current window where typing is sent; one per window
Current window	The window in the attached session where typing is sent; one per session
Last window	The previous current window
Session name	The name of a session, defaults to a number starting from zero
Window list	The list of windows in a session in order by number
Window name	The name of a window, defaults to the name of the running program in the active pane
Window index	The number of a window in a session's window list
Window layout	The size and position of the panes in a window

Using tmux interactively

Creating sessions

To create the first tmux session, tmux is run from the shell. A new session is created using the `new-session` command - `new` for short:

```
$ tmux new
```

Without arguments, `new-session` creates a new session and attaches it. Because this is the first session, the tmux server is started and the tmux run from the shell becomes the first client and attaches to it.

The new session will have one window (at index 0) with a single pane containing a shell. The shell prompt should appear at the top of the terminal and the green status line at the bottom (more on the status line is below).

By default, the first session will be called `0`, the second `1` and so on. `new-session` allows a name to be specified for the session with the `-s` flag:

```
$ tmux new -smysession
```

This creates a new session called `mysession`. A command may be given instead of running a shell by passing additional arguments. If one argument is given, tmux will pass it to the shell, if more than one it runs the command directly. For example these run *emacs(1)*:

```
$ tmux new 'emacs ~/.tmux.conf'
```

Or:

```
$ tmux new -- emacs ~/.tmux.conf
```

By default, tmux calls the first window in the session after whatever is running in it. The `-n` flag gives a name to use instead, in this case a window `mytopwindow` running *top(1)*:

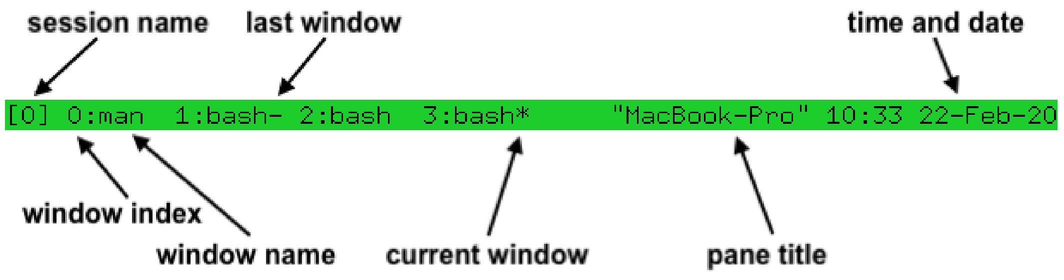
```
$ tmux new -nmytopwindow top
```

`new-session` has other flags - some are covered below. A full list is in the tmux manual.

The status line

When a tmux client is attached, it shows a status line on the bottom line of the screen. By default this is green and shows:

- On the left, the name of the attached session: `[0]`.
- In the middle, a list of the windows in the session, with their index, for example with one window called `ksh` at index 0: `0:ksh`.
- On the right, the pane title in quotes (this defaults to the name of the host running tmux) and the time and the date.



As new windows are opened, the window list grows - if there are too many windows to fit on the width of the terminal, a `<` or `>` will be added at the left or right or both to show there are hidden windows.

In the window list, the current window is marked with a `*` after the name, and the last window with a `-`.

The prefix key

Once a tmux client is attached, any keys entered are forwarded to the program running in the active pane of the current window. For keys that control tmux itself, a special key must be pressed first - this is called the prefix key.

The default prefix key is `C-b`, which means the `Ctrl` key and `b`. In tmux, modifier keys are shown by prefixing a key with `C-` for the control key, `M-` for the meta key (normally `Alt` on modern computers) and `S-` for the shift key. These may be combined together, so `C-M-x` means pressing the control key, meta key and `x` together.

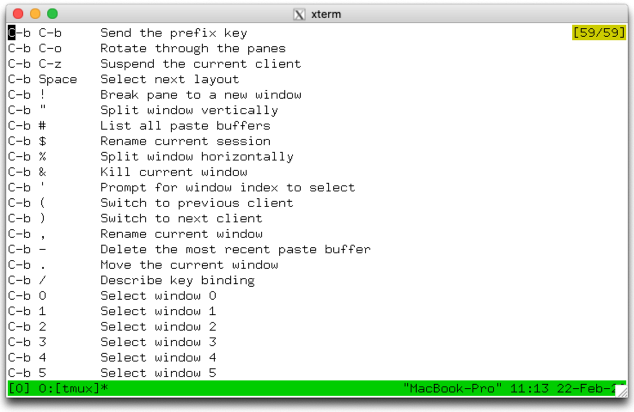
When the prefix key is pressed, tmux waits for another key press and that determines what tmux command is executed. Keys like this are shown here with a space between them: `C-b c` means first the prefix key `C-b` is pressed, then it is released and then the `c` key is pressed. Care must be taken to release the `Ctrl` key after pressing `C-b` if necessary - `C-b c` is different from `C-b C-c`.

Pressing `C-b` twice sends the `C-b` key to the program running in the active pane.

Help keys

Every default tmux key binding has a short description to help remember what the key does. A list of all the keys can be seen by pressing `C-b ?`.

`C-b ?` enters view mode to show text. A pane in view mode has its own key bindings which do not need the prefix key. These broadly follow *emacs(1)*. The most important are `Up`, `Down`, `C-Up`, `C-Down` to scroll up and down, and `q` to exit the mode. The line number of the top visible line together with the total number of lines is shown in the top right.



```
C-b C-b      Send the prefix key                                 [59/59]
C-b C-o      Rotate through the panes
C-b C-z      Suspend the current client
C-b Space    Select next layout
C-b !        Break pane to a new window
C-b "        Split window vertically
C-b #        List all paste buffers
C-b $        Rename current session
C-b %        Split window horizontally
C-b &        Kill current window
C-b '        Prompt for window index to select
C-b (        Switch to previous client
C-b )        Switch to next client
C-b ,        Rename current window
C-b -        Delete the most recent paste buffer
C-b .        Move the current window
C-b /        Describe key binding
C-b 0        Select window 0
C-b 1        Select window 1
C-b 2        Select window 2
C-b 3        Select window 3
C-b 4        Select window 4
C-b 5        Select window 5
[0] 0:[tmux]*                              "MacBook-Pro" 11:13 22-Feb-2
```

Alternatively, the same list can be seen from the shell by running:

```
$ tmux lsk -N|more
```

`C-b /` shows the description of a single key - a prompt at the bottom of the terminal appears. Pressing a key will show its description in the same place. For example, pressing `C-b /` then `?` shows:

```
C-b ? List key bindings
```

Commands and flags

tmux has a large set of commands. These all have a name like `new-window` or `new-session` or `list-keys` and many also have a shorter alias like `neww` or `new` or `lsk`.

Any time a key binding is used, it runs one or more tmux commands. For example, `C-b c` runs the `new-window` command.

Commands can also be used from the shell, as with `new-session` and `list-keys` above.

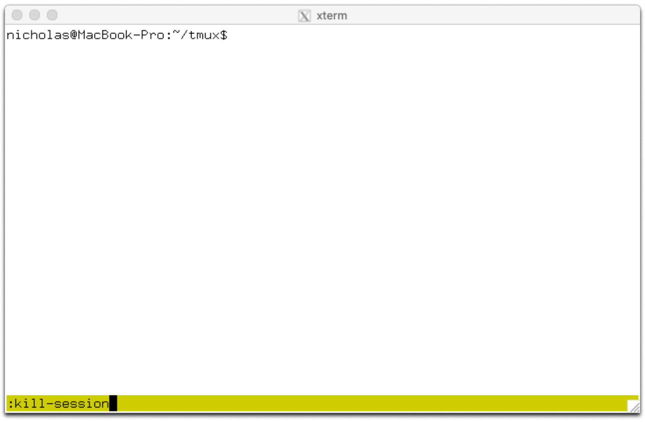
Each command has zero or more flags, in the same way as standard Unix commands. Flags may or may not take a single argument themselves. In addition, commands may take additional arguments after the flags. Flags are passed after the command, for example to run the `new-session` command (alias `new`) with flags `-d` and `-n`:

```
$ tmux new-session -d -nmysession
```

All commands and their flags are documented in the tmux manual page.

This document focuses on the available key bindings, but commands are mentioned for information or where there is a useful flag. They can be entered from the shell or from the command prompt, described in the next section.

The command prompt



```
nicholas@MacBook-Pro:~/tmux$
:kill-session
```

tmux has an interactive command prompt. This can be opened by pressing `C-b :` and appears instead of the status line, as shown in this screenshot.

At the prompt, commands can be entered similarly to how they are at the shell. Output will either be shown for a short period in the status line, or switch the active pane into view mode.

By default, the command prompt uses keys similar to *emacs(1)*; however, if the `VISUAL` or `EDITOR` environment variables are set to something containing `vi` (such as `vi` or `vim` or `nvi`), then *vi(1)*-style keys are used instead.

Multiple commands may be entered together at the command prompt by separating them with a semicolon (`;`). This is called a command sequence.

Attaching and detaching

Detaching from tmux means that the client exits and detaches from the outside terminal, returning to the shell and leaving the tmux session and any programs inside it running in the background. To detach tmux, the `C-b d` key binding is used. When tmux detaches, it will print a message with the session name:

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

The `attach-session` command attaches to an existing session. Without arguments, it will attach to the most recently used session that is not already attached:

```
$ tmux attach
```

Or `-t` gives the name of a session to attach to:

```
$ tmux attach -tmysession
```

By default, attaching to a session does not detach any other clients attached to the same session. The `-d` flag does this:

```
$ tmux attach -dtmysession
```

The `new-session` command has a `-A` flag to attach to an existing session if it exists, or create a new one if it does not. For a session named `mysession`:

```
$ tmux new -Asmysession
```

The `-D` flag may be added to make `new-session` also behave like `attach-session` with `-d` and detach any other clients attached to the session.

Listing sessions

The `list-session` command (alias `ls`) shows a list of available sessions that can be attached. This shows four sessions called `1`, `2`, `myothersession` and `mysession`:

```
$ tmux ls
1: 3 windows (created Sat Feb 22 11:44:51 2020)
2: 1 windows (created Sat Feb 22 11:44:51 2020)
myothersession: 2 windows (created Sat Feb 22 11:44:51 2020)
mysession: 1 windows (created Sat Feb 22 11:44:51 2020)
```

Killing tmux entirely

If there are no sessions, windows or panes inside tmux, the server will exit. It can also be entirely killed using the `kill-server` command. For example, at the command prompt:

```
:kill-server
```

Creating new windows

A new window can be created in an attached session with the `C-b c` key binding which runs the `new-window` command. The new window is created at the first available index - so the second window will have index 1. The new window becomes the current window of the session.

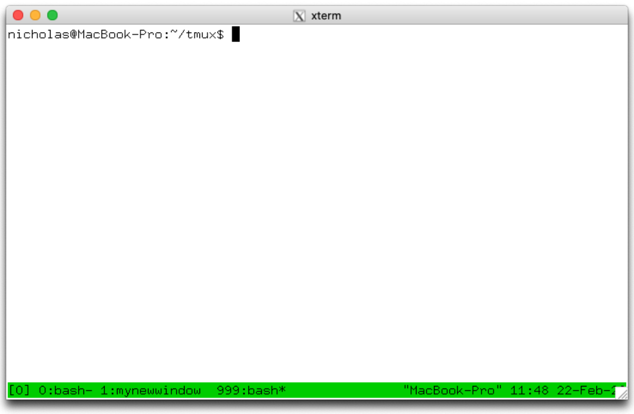
If there are any gaps in the window list, they are filled by new windows. So if there are windows with indexes 0 and 2, the next new window will be created as index 1.

The `new-window` command has some useful flags which can be used with the command prompt:

- The `-d` flag creates the window, but does not make it the current window.

- `-n` allows a name for the new window to be given. For example using the command prompt to create a window called `mynewwindow` without making it the current window:

  ```
  :neww -dnmynewwindow
  ```



```
nicholas@MacBook-Pro:~/tmux$
[0] 0:bash- 1:mynewwindow  999:bash*                "MacBook-Pro" 11:48 22-Feb-
```

- The `-t` flag specifies a target for the window. Command targets have a special syntax, but for simple use with `new-window` it is enough just to give a window index. This creates a window at index 999:

  ```
  :neww -t999
  ```

A command to be run in the new window may be given to `new-window` in the same way as `new-session`. For example to create a new window running *top(1)*:

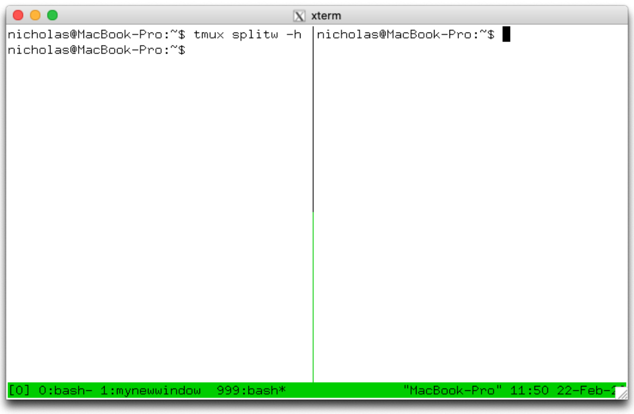
```
:neww top
```

Splitting the window

A pane is created by splitting a window. This is done with the `split-window` command which is bound to two keys by default:

- `C-b %` splits the current pane into two horizontally, producing two panes next to each other, one on the left and one on the right.

- `C-b "` splits the current pane into two vertically, producing two panes one above the other.



```
nicholas@MacBook-Pro:~$ tmux splitw -h |nicholas@MacBook-Pro:~$
nicholas@MacBook-Pro:~$                |
[0] 0:bash- 1:mynewwindow  999:bash*                "MacBook-Pro" 11:50 22-Feb-
```

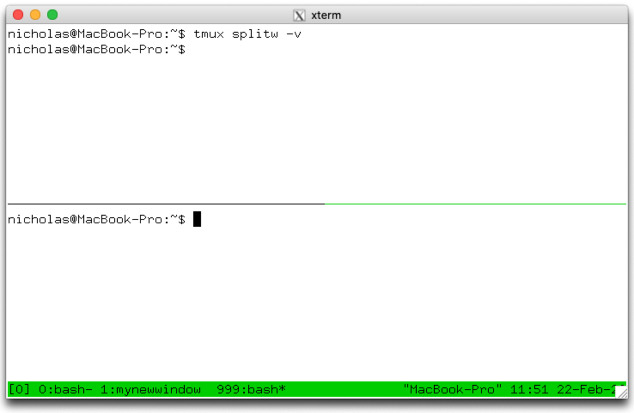
Each time a pane is split into two, each of those panes may be split again using the same key bindings, until the pane becomes too small.

`split-window` has several useful flags:

- `-h` does a horizontal split and `-v` a vertical split.

- `-d` does not change the active pane to the newly created pane.

- `-f` makes a new pane spanning the whole width or height of the window instead of being constrained to the size of the pane being split.



```
nicholas@MacBook-Pro:~$ tmux splitw -v
nicholas@MacBook-Pro:~$

nicholas@MacBook-Pro:~$
[0] 0:bash- 1:mynewwindow  999:bash*                "MacBook-Pro" 11:51 22-Feb-
```

- `-b` puts the new pane to the left or above of the pane being split instead of to the right or below.

A command to be run in the new pane may be given to `split-window` in the same way as `new-session` and `new-window` .

Changing the current window

There are several key bindings to change the current window of a session:

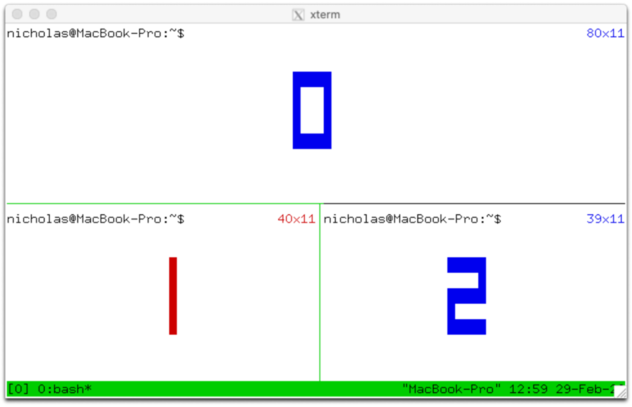
- `C-b 0` changes to window 0, `C-b 1` to window 1, up to window `C-b 9` for window 9.
- `C-b '` prompts for a window index and changes to that window.
- `C-b n` changes to the next window in the window list by number. So pressing `C-b n` when in window 1 will change to window 2 if it exists.
- `C-b p` changes to the previous window in the window list by number.
- `C-b l` changes to the last window, which is the window that was last the current window before the window that is now.

These are all variations of the `select-window` command.

Changing the active pane

The active pane can be changed between the panes in a window with these key bindings:

- `C-b Up` , `C-b Down` , `C-b Left` and `C-b Right` change to the pane above, below, left or right of the active pane. These keys wrap around the window, so pressing `C-b Down` on a pane at the bottom will change to a pane at the top.
- `C-b q` prints the pane numbers and their sizes on top of the panes for a short time. Pressing one of the number keys before they disappear changes the active pane to the chosen pane, so `C-b q 1` will change to pane number 1.
- `C-b o` moves to the next pane by pane number and `C-b C-o` swaps that pane with the active pane, so they exchange positions and sizes in the window.

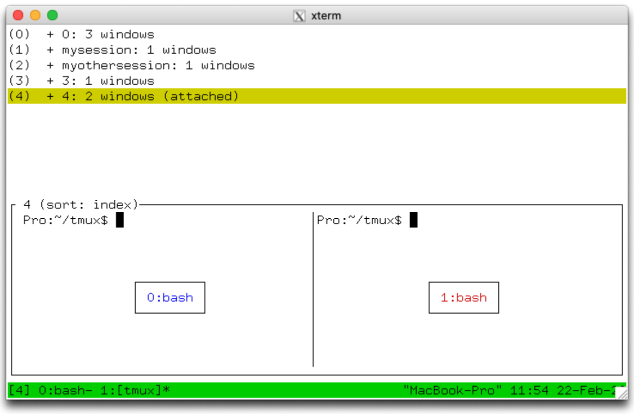


```
nicholas@MacBook-Pro:~$                                                    80x11

nicholas@MacBook-Pro:~$              40x11 nicholas@MacBook-Pro:~$           39x11

[0] 0:bash*                                          "MacBook-Pro" 12:59 29-Feb-
```

These use the `select-pane` and `display-panes` commands.

Pane numbers are not fixed, instead panes are numbered by their position in the window, so if the pane with number 0 is swapped with the pane with number 1, the numbers are swapped as well as the panes themselves.

Choosing sessions, windows and panes

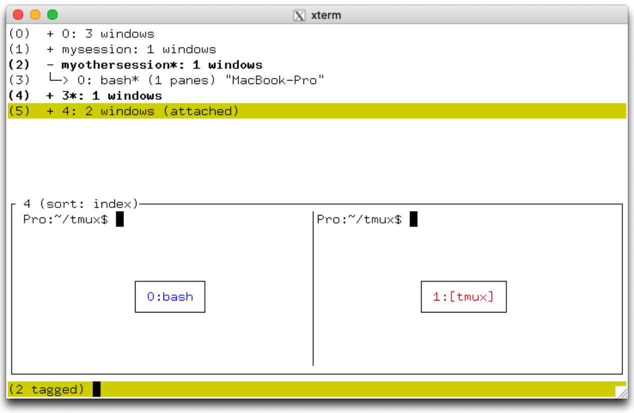


```
(0)  + 0: 3 windows
(1)  + mysession: 1 windows
(2)  + myothersession: 1 windows
(3)  + 3: 1 windows
(4)  + 4: 2 windows (attached)

┌ 4 (sort: index)─────────────────────────────────────────
 Pro:~/tmux$ █                        │Pro:~/tmux$ █
                                      │
             0:bash                   │             1:bash
                                      │
[4] 0:bash- 1:[tmux]*                        "MacBook-Pro" 11:54 22-Feb-
```

tmux includes a mode where sessions, windows or panes can be chosen from a tree, this is called tree mode. It can be used to browse sessions, windows and panes; to change the attached session, the current window or active pane; to kill sessions, windows and panes; or apply a command to several at once by tagging them.

There are two key bindings to enter tree mode: `C-b s` starts showing only sessions and with the attached session selected; `C-b w` starts with sessions expanded so windows are shown and with the current window in the attached session selected.

Tree mode splits the window into two sections: the top half has a tree of sessions, windows and panes and the bottom half has a preview of the area around the cursor in each pane. For sessions the preview shows the active panes in as many windows will fit; for windows as many panes as will fit; and for panes only the selected pane.



```
(0)  + 0: 3 windows
(1)  + mysession: 1 windows
(2)  - myothersession*: 1 windows
(3)  └─> 0: bash* (1 panes) "MacBook-Pro"
(4)  + 3*: 1 windows
(5)  + 4: 2 windows (attached)

┌ 4 (sort: index)─────────────────────────────────────────
 Pro:~/tmux$ █                        │Pro:~/tmux$ █
                                      │
             0:bash                   │             1:[tmux]
                                      │
(2 tagged) █
```

Keys to control tree mode do not require the prefix. The list may be navigated with the `Up` and `Down` keys. `Enter` changes to the selected item (it becomes the attached session, current window or active pane) and exits the mode. `Right` expands the item if possible - sessions expand to show their windows and windows to show their panes. `Left` collapses the item to hide any windows or panes. `O` changes the order of the items and `q` exits tree mode.

Items in the tree are tagged by pressing `t` and untagged by pressing `t` again. Tagged items are shown in bold and with `*` after their name. All tagged items may be untagged by pressing `T`. Tagged items may be killed together by pressing `X`, or a command applied to them all by pressing `:` for a prompt.

Each item in the tree has as shortcut key in brackets at the start of the line. Pressing this key will immediately choose that item (as if it had been selected and `Enter` pressed). The first ten items are keys `0` to `9` and after that keys `M-a` to `M-z` are used.

This is a list of the keys available in tree mode without pressing the prefix key:

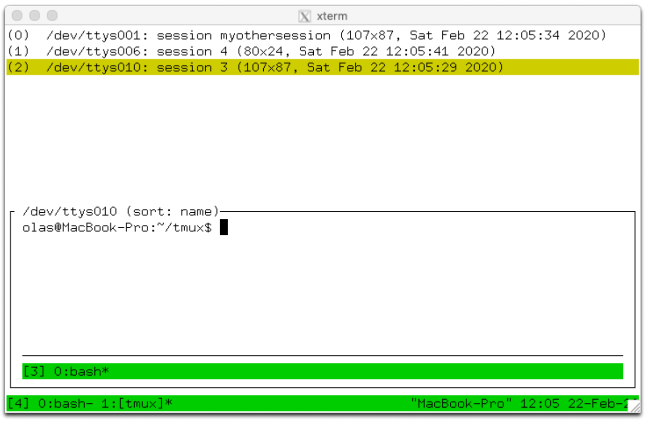
Key	Function
Enter	Change the attached session, current window or active pane
Up	Select previous item
Down	Select next item
Right	Expand item
Left	Collapse item
x	Kill selected item
X	Kill tagged items

Key	Function
<	Scroll preview left
>	Scroll preview right
C-s	Search by name
n	Repeat last search
t	Toggle if item is tagged
T	Tag no items
C-t	Tag all items
:	Prompt for a command to run for the selected item or each tagged item
O	Change sort field
r	Reverse sort order
v	Toggle preview
q	Exit tree mode

Tree mode is activated with the `choose-tree` command.

Detaching other clients

A list of clients is available by pressing `C-b D` (that is, `C-b S-d`). This is similar to tree mode and is called client mode.



```
(0)  /dev/ttys001: session myothersession (107x87, Sat Feb 22 12:05:34 2020)
(1)  /dev/ttys006: session 4 (80x24, Sat Feb 22 12:05:41 2020)
(2)  /dev/ttys010: session 3 (107x87, Sat Feb 22 12:05:29 2020)

┌ /dev/ttys010 (sort: name)
 olas@MacBook-Pro:~/tmux$

 [3] 0:bash*
[4] 0:bash- 1:[tmux]*                              "MacBook-Pro" 12:05 22-Feb-2
```

Each client is shown in the list in the top half with its name, attached session, size and the time and date when it was last used; the bottom half has a preview of the selected client with as much of its status line as will fit.

The movement and tag keys are the same as tree mode, but others are different, for example the `Enter` key detaches the selected client.

This is a list of the keys in client mode without the movement and tagging keys that are the same as tree mode:

Key	Function
Enter	Detach selected client
d	Detach selected client, same as `Enter`
D	Detach tagged clients
x	Detach selected client and try to kill the shell it was started from
X	Detach tagged clients and try to kill the shells they were started from

Other than using client mode, the `detach-client` command has a `-a` flag to detach all clients other than the attached client.

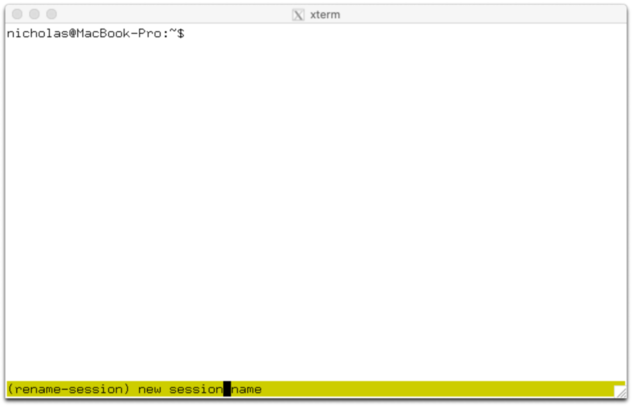
Killing a session, window or pane

Pressing `C-b &` prompts for confirmation then kills (closes) the current window. All panes in the window are killed at the same time. `C-b x` kills only the active pane. These are bound to the `kill-window` and `kill-pane` commands.

The `kill-session` command kills the attached session and all its windows and detaches the client. There is no key binding for `kill-session` but it can be used from the command prompt or the `:` prompt in tree mode.

Renaming sessions and windows

`C-b $` will prompt for a new name for the attached session. This uses the `rename-session` command. Likewise, `C-b ,` prompts for a new name for the current window, using the `rename-window` command.



```
nicholas@MacBook-Pro:~$




(rename-session) new session name
```

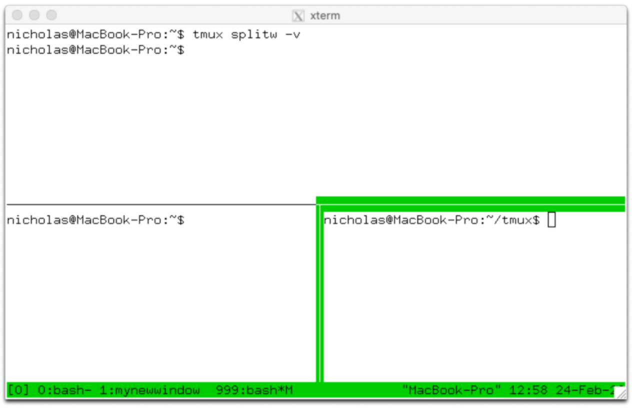
Swapping and moving

tmux allows panes and windows to be swapped with the `swap-pane` and `swap-window` commands.

To make swapping easy, a single pane can be marked. There is one marked pane across all sessions. The `C-b m` key binding toggles whether the active pane in the current window in the attached session is the marked pane. `C-b M` clears the marked pane entirely so that no pane is marked. The marked pane is shown by a green background to its border and the window containing the marked pane has an `M` flag in the status line.

Once a pane is marked, it can be swapped with the active pane in the current window with the `swap-pane` command, or the window containing the marked pane can be swapped with the current window using the `swap-window` command. For example, using the command prompt:

```
:swap-pane
```



```
nicholas@MacBook-Pro:~$ tmux splitw -v
nicholas@MacBook-Pro:~$



nicholas@MacBook-Pro:~$              nicholas@MacBook-Pro:~/tmux$



[0] 0:bash- 1:mynewwindow  999:bash*M              "MacBook-Pro" 12:58 24-Feb-
```

Panes can additionally be swapped with the pane above or below using the `C-b {` and `C-b }` key bindings.

Moving windows uses the `move-window` command or the `C-b .` key binding. Pressing `C-b .` will prompt for a new index for the current window. If a window already exists at the given index, an error will be shown. An existing window can be replaced by using the `-k` flag - to move a window to index 999:

```
:move-window -kt999
```

If there are gaps in the window list, the indexes can be renumbered with the `-r` flag to `move-window`. For example, this will change a window list of 0, 1, 3, 999 into 0, 1, 2, 3:

```
:movew -r
```

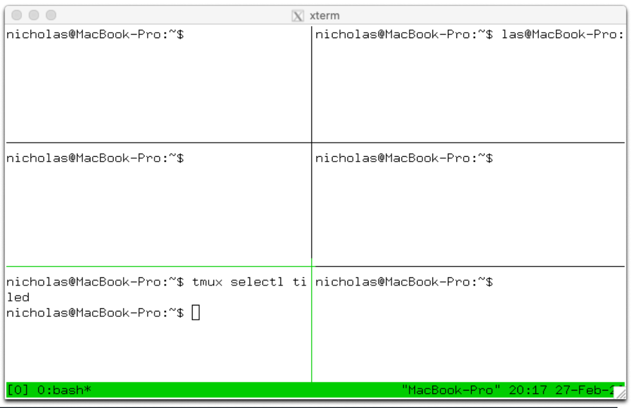
Resizing and zooming panes

Panes may be resized in small steps with `C-b C-Left`, `C-b C-Right`, `C-b C-Up` and `C-b C-Down` and in larger steps with `C-b M-Left`, `C-b M-Right`, `C-b M-Up` and `C-b M-Down`. These use the `resize-pane` command.

A single pane may be temporarily made to take up the whole window with `C-b z`, hiding any other panes. Pressing `C-b z` again puts the pane and window layout back to how it was. This is called zooming and unzooming. A window where a pane has been zoomed is marked with a `Z` in the status line. Commands that change the size or position of panes in a window automatically unzoom the window.

Window layouts

The panes in a window may be automatically arranged into one of several named layouts, these may be rotated between with the `C-b Space` key binding or chosen directly with `C-b M-1`, `C-b M-2` and so on.



```
nicholas@MacBook-Pro:~$                 nicholas@MacBook-Pro:~$ las@MacBook-Pro:

nicholas@MacBook-Pro:~$                 nicholas@MacBook-Pro:~$

nicholas@MacBook-Pro:~$ tmux selectl ti nicholas@MacBook-Pro:~$
led
nicholas@MacBook-Pro:~$
[0] 0:bash*                             "MacBook-Pro" 20:17 27-Feb-
```

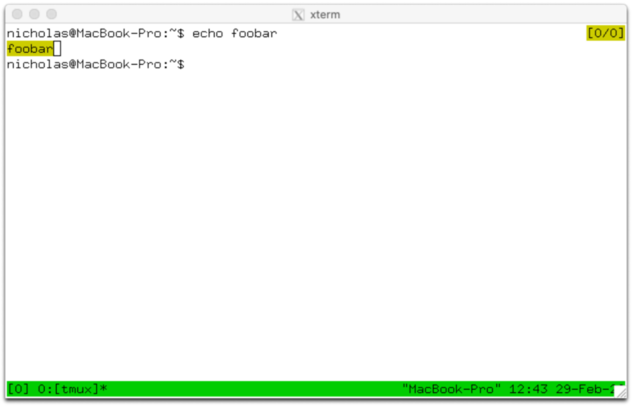
The available layouts are:

Name	Key	Description
even-horizontal	C-b M-1	Spread out evenly across
even-vertical	C-b M-2	Spread out evenly up and down
main-horizontal	C-b M-3	One large pane at the top, the rest spread out evenly across
main-vertical	C-b M-4	One large pane on the left, the rest spread out evenly up and down
tiled	C-b M-5	Tiled in the same number of rows as columns

Copy and paste

tmux has its own copy and paste system. A piece of copied text is called a paste buffer. Text is copied using copy mode, entered with `C-b [`, and the most recently copied text is pasted into the active pane with `C-b ]`.

Paste buffers can be given names but by default they are assigned a name by tmux, such as `buffer0` or `buffer1`. Buffers like this are called automatic buffers and at most 50 are kept - once there are 50 buffers, the oldest is removed when another is added. If a buffer is given a name, it is called a named buffer; named buffers are not deleted no matter how many there are.



```
nicholas@MacBook-Pro:~$ echo foobar                          [0/0]
foobar
nicholas@MacBook-Pro:~$

[0] 0:[tmux]*                          "MacBook-Pro" 12:43 29-Feb-
```

It is possible to configure tmux to send any copied text to the system clipboard: [this document](https://github.com/tmux/tmux/wiki/Clipboard) explains the different ways to configure this.

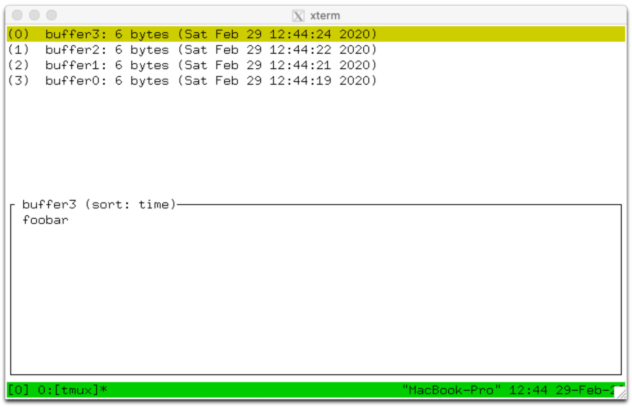
Copy mode freezes any output in a pane and allows text to be copied. View mode (described earlier) is a read-only form of copy mode.

Like the command prompt, copy mode uses keys similar to *emacs(1)*; however, if the `VISUAL` or `EDITOR` environment variables are set to something containing `vi`, then *vi(1)*-style keys are used instead. The following keys are some of those available in copy mode with *emacs(1)* keys:

Key	Action
`Up`, `Down`, `Left`, `Right`	Move the cursor
`C-Space`	Start a selection
`C-w`	Copy the selection and exit copy mode
`q`	Exit copy mode
`C-g`	Stop selecting without copying, or stop searching
`C-a`	Move the cursor to the start of the line
`C-e`	Move the cursor to the end of the line
`C-r`	Search interactively backwards
`M-f`	Move the cursor to the next word
`M-b`	Move the cursor to the previous word

A full list of keys for both *vi(1)* and *emacs(1)* is [available in the manual page].

Once some text is copied, the most recent may be pasted with `C-b ]` or an older buffer pasted by using buffer mode, entered with `C-b =`. Buffer mode is similar to client mode and tree mode and offers a list of buffers together with a preview of their contents. As well as the navigation and tagging keys used in tree mode and client mode, buffer mode supports the following keys:



```
(0)  buffer3: 6 bytes (Sat Feb 29 12:44:24 2020)
(1)  buffer2: 6 bytes (Sat Feb 29 12:44:22 2020)
(2)  buffer1: 6 bytes (Sat Feb 29 12:44:21 2020)
(3)  buffer0: 6 bytes (Sat Feb 29 12:44:19 2020)

┌ buffer3 (sort: time)──────────────────────────
  foobar

[0] 0:[tmux]*                  "MacBook-Pro" 12:44 29-Feb-
```

Key	Function
`Enter`	Paste selected buffer
`p`	Paste selected buffer, same as `Enter`
`P`	Paste tagged buffers
`d`	Delete selected buffer
`D`	Delete tagged buffers

A buffer may be renamed using the `set-buffer` command. The `-b` flag gives the existing buffer name and `-n` the new name. This converts it into a named buffer. For example, to rename `buffer0` to `mybuffer` from the command prompt:

```
:setb -bbuffer0 -nmybuffer
```

`set-buffer` can also be used to create buffers. To create a buffer called `foo` with text `bar`:

```
:setb -bfoo bar
```

`load-buffer` will load a buffer from a file:

```
:loadb -bbuffername ~/a/file
```

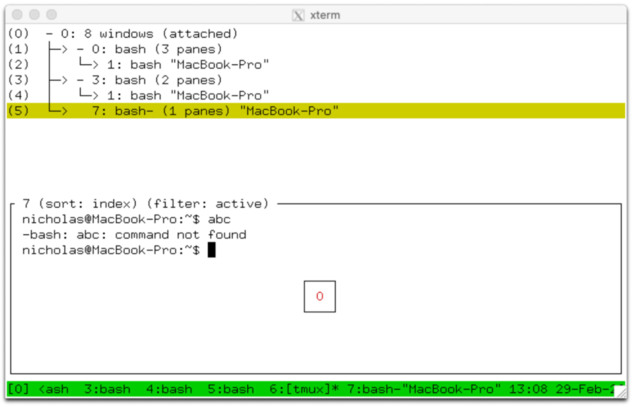
`set-buffer` or `load-buffer` without `-b` creates an automatic buffer.

An existing buffer can be saved to a file with `save-buffer`:

```
:saveb -bbuffer0 ~/saved_buffer
```

Finding windows and panes

`C-b f` prompts for some text and then enters tree mode with a filter to show only panes where that text appears in the visible content or title of the pane or in the window name. If panes are found, only those panes appear in the tree, and the text `filter: active` is shown above the preview. If no panes are found, all panes are shown in the tree and the text `filter: no matches` appears above the preview.



```
(0)  - 0: 8 windows (attached)
(1)  ├─> - 0: bash (3 panes)
(2)  │     └─> 1: bash "MacBook-Pro"
(3)  ├─> - 3: bash (2 panes)
(4)  │     └─> 1: bash "MacBook-Pro"
(5)  └─>   7: bash- (1 panes) "MacBook-Pro"

┌ 7 (sort: index) (filter: active) ─────────────
  nicholas@MacBook-Pro:~$ abc
  -bash: abc: command not found
  nicholas@MacBook-Pro:~$ █

                          0

[0] <ash  3:bash  4:bash  5:bash  6:[tmux]* 7:bash-"MacBook-Pro" 13:08 29-Feb-
```

Using the mouse

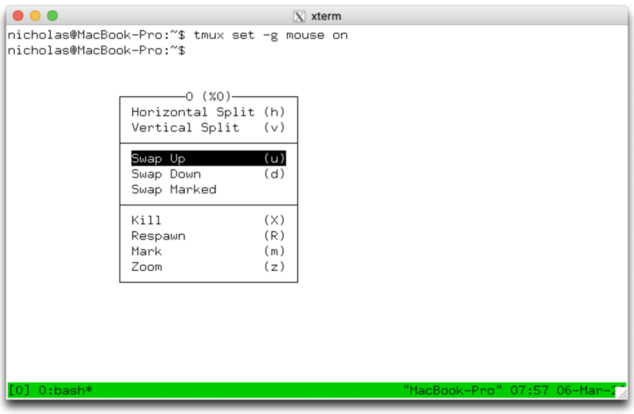
tmux has rich support for the mouse. It can be used to change the active pane or window, to resize panes, to copy text, or to choose items from menus.

Support for the mouse is enabled with the `mouse` option; options and the configuration file are described in detail in the next section. To turn the mouse on from the command prompt, use the `set-option` command:

```
:set -g mouse on
```

Once the mouse is enabled:

- Pressing the left button on a pane will make that pane the active pane.
- Pressing the left button on a window name on the status line will make that the current window.
- Dragging with the left button on a pane border resizes the pane.



```
nicholas@MacBook-Pro:~$ tmux set -g mouse on
nicholas@MacBook-Pro:~$

          ┌───────0 (%0)───────┐
          │ Horizontal Split (h)│
          │ Vertical Split   (v)│
          ├─────────────────────┤
          │ Swap Up          (u)│
          │ Swap Down        (d)│
          │ Swap Marked         │
          ├─────────────────────┤
          │ Kill             (X)│
          │ Respawn          (R)│
          │ Mark             (m)│
          │ Zoom             (z)│
          └─────────────────────┘

[0] 0:bash*                               "MacBook-Pro" 07:57 06-Mar-
```

- Dragging with the left button inside a pane selects text; the selected text is copied when the mouse is released.
- Pressing the right button on a pane opens a menu with various commands. When the mouse button is released, the selected command is run with the pane as target. Each menu item also has a key shortcut shown in brackets.
- Pressing the right button on a window or on the session name on the status line opens a similar menu for the window or session.

Configuring tmux

The configuration file

When the tmux server is started, tmux runs a file called `.tmux.conf` in the user's home directory. This file contains a list of tmux commands which are executed in order. It is important to note that `.tmux.conf` is *only* run when the server is started, not when a new session is created.

A different configuration file may be run from `.tmux.conf` or from a running tmux server using the `source-file` command, for example to run `.tmux.conf` again from a running server using the command prompt:

```
:source ~/.tmux.conf
```

Commands in a configuration file appear one per line. Any lines starting with `#` are comments and are ignored:

```
# This is a comment - the command below turns the status line off
set -g status off
```

Lines in the configuration file are processed similar to the shell, for example:

- Arguments may be enclosed in `'` or `"` to include spaces, or spaces may be escaped. These four lines do the same thing:

  ```
  set -g status-left "hello word"
  set -g status-left "hello\ word"
  set -g status-left 'hello word'
  set -g status-left hello\ word
  ```

- But escaping doesn't happen inside `'`s. The string here is `hello\ world` not `hello world`:

  ```
  set -g status-left 'hello\ word'
  ```

- `~` is expanded to the home directory (except inside `'`s):

  ```
  source ~/myfile
  ```

- Environment variables can be set and are also expanded (but not inside `'`s):

  ```
  MYFILE=myfile
  source "~/$MYFILE"
  ```

  Any variables set in the configuration file will be passed on to new panes created inside tmux.

- A few special characters like `\n` (newline) and `\t` (tab) are replaced. A literal `\` must be given as `\\`.

Although tmux configuration files have some features similar to the shell, they are not shell scripts and cannot use shell constructs like `$()`.

Key bindings

tmux key bindings are changed using the `bind-key` and `unbind-key` commands. Each key binding in tmux belongs to a named key table. There are four default key tables:

- The `root` table contains key bindings for keys pressed without the prefix key.

- The `prefix` table contains key bindings for keys pressed after the prefix key, like those mentioned so far in this document.

- The `copy-mode` table contains key bindings for keys used in copy mode with *emacs(1)*-style keys.

- The `copy-mode-vi` table contains key bindings for keys used in copy mode with *vi(1)*-style keys.

All the key bindings or those for a single table can be listed with the `list-keys` command. By default, this shows the keys as a series of `bind-key` commands. The `-T` flag gives the key table to show and the `-N` flag shows the key help, like the `C-b ?` key binding.

For example to list only keys in the `prefix` table:

```
$ tmux lsk -Tprefix
bind-key    -T prefix C-b     send-prefix
bind-key    -T prefix C-o     rotate-window
...
```

Or:

```
$ tmux lsk -Tprefix -N
C-b     Send the prefix key
C-o     Rotate through the panes
...
```

`bind-key` commands can be used to set a key binding, either interactively or most commonly from the configuration file. Like `list-keys`, `bind-key` has a `-T` flag for the key table to use. If `-T` is not given, the key is put in the `prefix` table; the `-n` flag is a shorthand for `-Troot` to use the `root` table.

For example, the `list-keys` command shows that `C-b 9` changes to window 9 using the `select-window` command:

```
$ tmux lsk -Tprefix 9
bind-key -T prefix 9 select-window -t :=9
```

A similar key binding to make `C-b M-0` change to window 10 can be added like this:

```
bind M-0 selectw -t:=10
```

The `-t` flag to `select-window` specifies the target window. In this example, the `:` means the target is a window and `=` means the name must match `10` exactly. Targets are documented further in the [COMMANDS section of the manual page](https://man.openbsd.org/tmux#COMMANDS).

The `unbind-key` command removes a key binding. Like `bind-key` it has `-T` and `-n` flags for the key table. It is not necessary to remove a key binding before binding it again, `bind-key` will replace any existing key binding. `unbind-key` is necessary only to completely remove a key binding:

```
unbind M-0
```

Copy mode key bindings

Copy mode key bindings are set in the `copy-mode` and `copy-mode-vi` key tables. Copy mode has a separate set of commands which are passed using the `-X` flag to the `send-keys` command, for example the copy mode `start-of-line` command moves the cursor to the start of the line and is bound to `C-a` in the `copy-mode` key table:

```
$ tmux lsk -Tcopy-mode C-a
bind-key -T copy-mode C-a send-keys -X start-of-line
```

A full list of copy mode commands is available in the manual page. Here is a selection:

Command	*emacs(1)*	*vi(1)*	Description
begin-selection	C-Space	Space	Start selection
cancel	q	q	Exit copy mode
clear-selection	C-g	Escape	Clear selection
copy-pipe			Copy and pipe to the command in the first argument
copy-selection-and-cancel	M-w	Enter	Copy the selection and exit copy mode
cursor-down	Down	j	Move the cursor down
cursor-left	Left	h	Move the cursot left
cursor-right	Right	l	Move the cursor right
cursor-up	Up	k	Move the cursor up
end-of-line	C-e	$	Move the cursor to the end of the line
history-bottom	M->	G	Move to the bottom of the history

Command	*emacs(1)*	*vi(1)*	Description
history-top	M-<	g	Move to the top of the history
middle-line	M-r	M	Move to middle line
next-word-end	M-f	e	Move to the end of the next word
page-down	PageDown	C-f	Page down
page-up	PageUp	C-b	Page up
previous-word	M-b	b	Move to the previous word
rectangle-toggle	R	v	Toggle rectangle selection
search-again	n	n	Repeat the last search
search-backward		?	Search backwards, the first argument is the search term
search-backward-incremental	C-r		Search backwards incrementally, usually used with the `-i` flag to `command-prompt`
search-forward		/	Search forwards, the first argument is the search term
search-forward-incremental	C-s		Search forwards incrementally
search-reverse	N	N	Repeat the last search but reverse the direction
start-of-line	C-a	0	Move to the start of the line

Types of option

tmux is configured by setting options. There are several types of options:

- Server options which affect the entire server.
- Session options which affect one or all sessions.
- Window options which affect one or all windows.
- Pane options which affect one or all panes.
- User options which are not used by tmux but are reserved for the user.

Session and window options have both a global set of options and a set for each session or window. If the option is not present in the session or window set, the global option is used. Pane options are similar except the window options are also checked.

When configuring tmux, it is most common to set server options and global session or window options. This document only covers these.

Showing options

Options are displayed using the `show-options` command. The `-g` flag shows global options. It can show server, session or window options:

- `-s` shows server options:

```
$ tmux show -s
backspace C-?
buffer-limit 50
...
```

- `-g` with no other flags shows global session options:

```
$ tmux show -g
activity-action other
assume-paste-time 1
...
```

- `-g` and `-w` together show global window options:

```
$ tmux show -wg
aggressive-resize off
allow-rename off
...
```

An individual option value may be shown by giving its name to `show-option`. When an option name is given, it is not necessary to give `-s` or `-w` because tmux can work it out from the option name. For example, to show the `status` option:

```
$ tmux show -g status
status on
```

Changing options

Options are set or unset using the `set-option` command. Like `show-option`, it is not necessary to give `-s` or `-w` because tmux can work out it out from the option name. `-g` is necessary to set global session or window options; for server options it does nothing.

To set the `status` option:

```
set -g status off
```

Or the `default-terminal` option:

```
set -s default-terminal 'tmux-256color'
```

The `-u` flag unsets an option. Unsetting a global option restores it to its default value, for example:

```
set -gu status
```

Formats

Many options make use of formats. Formats provide a powerful syntax to configure how text appears, based on various attributes of the tmux server, a session, window or pane. Formats are enclosed in `#{}` in string options or as a single uppercase letter like `#F`. This is the default `status-right` with several formats:

```
$ tmux show -s status-right
status-right "#{?window_bigger,[#{window_offset_x}#,#{window_offset_y}] ,}\"#{=21:pane_title}\"
%H:%M %d-%b-%y"
```

Formats are described in this document and in the manual page.

Embedded commands

Some options may contain embedded shell commands. This is limited to the status line options such as `status-left`. Embedded shell commands are enclosed in `#()`. They can either:

1. Print a line and exit, in which case the line will be shown in the status line and the command run at intervals to update it. For example:

   ```
   set -g status-left '#(uptime)'
   ```

   The maximum interval is set by the `status-interval` option but commands may also be run sooner if tmux needs. Commands will not be run more than once a second.

2. Stay running and print a line whenever needed, for example:

   ```
   set -g status-left '#(while :; do uptime; sleep 1; done)'
   ```

Note that is it not usually necessary to use an embedded command for the date and time since tmux will expand the date formats like `%H` and `%S` itself in the status line options. If a command like *date(1)* is used, any `%` s must be doubled as `%%`.

Colours and styles

tmux allows the colour and attribute of text to be configured with a simple syntax, this is known as the style. There are two places styles appear:

- In options, such as `status-style`.
- Enclosed in `#[]` in an option value, this is called an embedded style (see the next section).

A style has a number of terms separated by spaces or commas, the most useful are:

- `default` uses the default colour; this must appear on its own. The default colour is often set by another option, for example for embedded styles in the `status-left` option, it is `status-style`.
- `bg` sets the background colour. The colour is also given, for example `bg=red`.
- `fg` sets the foreground colour. Like `bg`, the colour is given: `fg=green`.

- bright or bold , underscore , reverse , italics set the attributes. These appear alone, such as: bright,reverse .

Colours may be one of black , red , green , yellow , blue , magenta , cyan , white for the standard terminal colours; brightred , brightyellow and so on for the bright variants; colour0 to colour255 for the colours from the 256-colour palette; default for the default colour; or a hexadecimal RGB colour such as #882244 .

The remaining style terms are described in the manual page.

For example, to set the status line background to blue using the status-style option:

```
set -g status-style 'bg=blue'
```

Embedded styles

Embedded styles are included inside another option in between #[and] . Each changes the style of following text until the next embedded style or the end of the text.

For example, to put some text in red and blue in status-left :

```
set -g status-left 'default #[fg=red] red #[fg=blue] blue'
```

Because this is long it is also necessary to also increase the status-left-length option:

```
set -g status-left-length 100
```

Or embedded styles can be used conditionally, for example to show P in red if the prefix has been pressed or in the default style if not:

```
set -g status-left '#{?client_prefix,#[bg=red],}P#[default] [#{session_name}] '
```

List of useful options

This is a short list of the most commonly used tmux options, apart from style options:

Option	Type	Description
base-index	session	If set, then windows indexes start from this instead of from 0
buffer-limit	server	The maximum number of automatic buffers to keep, the default is 50
default-terminal	server	The default value of the TERM environment variable inside tmux
display-panes-time	window	The time in milliseconds the pane numbers are shown for C-b q
display-time	session	The time in milliseconds for which messages on the status line are shown

Option	Type	Description
escape-time	server	The time tmux waits after receiving an `Escape` key to see if it is part of a longer key sequence
focus-events	server	Whether focus key sequences are sent by tmux when the active pane changes and when received from the outside terminal if it supports them
history-limit	session	The maximum number of lines kept in the history for each pane
mode-keys	window	Whether *emacs(1)* or *vi(1)* key bindings are used in copy mode
mouse	session	If the mouse is enabled
pane-border-status	window	Whether a status line appears in every pane border: `top` or `bottom`
prefix	session	The prefix key, the default is `C-b`
remain-on-exit	window	Whether panes are automatically killed when the program running in the exits
renumber-windows	session	If `on`, windows are automatically renumbered to close any gaps in the window list
set-clipboard	server	Whether tmux should attempt to set the external *X(7)* clipboard when text is copied and if the outside terminal supports it
set-titles	session	If `on`, tmux will set the title of the outside terminal
status	session	Whether the status line if visible
status-keys	session	Whether *emacs(1)* or *vi(1)* key bindings are used at the command prompt
status-interval	session	The maximum time in seconds before the status line is redrawn
status-position	session	The position of the status line: `top` or `bottom`
synchronize-panes	window	If `on`, typing in any pane in the window is sent to all panes in the window - care should be taken with this option!
terminal-overrides	server	Any capabilities tmux should override from the `TERM` given for the outside terminal

List of style and format options

This is a list of the most commonly used tmux style and format options:

Option	Type	Description
display-panes-active-colour	session	The style of the active pane number for `C-b q`
display-panes-colour	session	The style of the pane numbers, apart from the active pane for `C-b q`

Option	Type	Description
`message-style`	session	The style of messages shown on the status line and of the command prompt
`mode-style`	window	The style of the selection in copy mode
`pane-active-border-style`	window	The style of the active pane border
`pane-border-format`	window	The format of text that appears in the pane border status line if `pane-border-status` is set
`pane-border-style`	window	The style of the pane borders, apart from the active pane
`status-left-length`	session	The maximum length of the status line left
`status-left-style`	session	The style of the status line left
`status-left`	session	The format of the text in the status line left
`status-right-length`	session	The maximum length of the status line right
`status-right-style`	session	The style of the status line right
`status-right`	session	The format of the text in the status line right
`status-style`	session	The style of the status line as a whole, parts may be overridden by more specific options like `status-left-style`
`window-active-style`	window	The style of the default colour in the active pane in the window
`window-status-current-format`	window	The format of the current window in the window list
`window-status-current-style`	window	The style of the current window in the window list
`window-status-format`	window	The format of windows in the window list, apart from the current window
`window-status-separator`	window	The separator between windows in the window list
`window-status-style`	window	The style of windows in the window list, apart from the current window
`window-style`	window	The style of the default colour of panes in the window, apart from the active pane

Common configuration changes

This section shows examples of some common configuration changes for `.tmux.conf`.

Changing the prefix key

The prefix key is set by the `prefix` option. The `C-b` key is also bound to the `send-prefix` command in the prefix key table so pressing `C-b` twice sends it through to the active pane. To change to `C-a`:

```
set -g prefix C-a
unbind C-b
bind C-a send-prefix
```

Customizing the status line

There are many options for customizing the status line. The simplest options are:

- Turn the status line off: `set -g status off`
- Move it to the top: `set -g status-position top`
- Set the background colour to red: `set -g status-style bg=red`
- Change the text on the right to the time only: `set -g status-right '%H:%M'`
- Underline the current window: `set -g window-status-current-style 'underscore'`

Configuring the pane border

The pane border colours may be set:

```
set -g pane-border-style fg=red
set -g pane-active-border-style 'fg=red,bg=yellow'
```

Each pane may be given a status line with the `pane-border-status` option, for example to show the pane title in bold:

```
set -g pane-border-status top
set -g pane-border-format '#[bold]#{pane_title}#[default]'
```

vi(1) key bindings

tmux supports key bindings based on *vi(1)* for copy mode and the command prompt. There are two options that set the key bindings:

1. `mode-keys` sets the key bindings for copy mode. If this is set to `vi`, then the `copy-mode-vi` key table is used in copy mode; otherwise the `copy-mode` key table is used.
2. `status-keys` sets the key bindings for the command prompt.

If either of the `VISUAL` or `EDITOR` environment variables are set to something containing `vi` (such as `vi`, `vim`, `nvi`) when the tmux server is first started, both of these options are set to `vi`.

To set both to use *vi(1)* keys:

```
set -g mode-keys vi
set -g status-keys vi
```

Mouse copying behaviour

When dragging the mouse to copy text, tmux copies and exits copy mode when the mouse button is released. Alternative behaviours are configured by changing the `MouseDragEnd1Pane` key binding. The three most useful are:

1. Do not copy or clear the selection or exit copy mode when the mouse is released. The keyboard must be used to copy the selection:

```
unbind -Tcopy-mode MouseDragEnd1Pane
```

2. Copy and clear the selection but do not exit copy mode:

```
bind -Tcopy-mode MouseDragEnd1Pane send -X copy-selection
```

3. Copy but do not clear the selection:

```
bind -Tcopy-mode MouseDragEnd1Pane send -X copy-selection-no-clear
```

Other features

tmux has a large set of features and commands not mentioned in this document, many allowing powerful scripting. Here is a list of some that may be worth further reading:

- Alerts: `monitor-activity` , `monitor-bell` , `monitor-silence` , `activity-action` , `bell-action` and other options.
- Options for individual session, windows and panes.
- Moving panes with `join-pane` and `break-pane` .
- Sending keys to panes with `send-keys` .
- The command prompt `history-file` option.
- Saved layout strings with `select-layout` .
- Command sequences (separated by `;`): `select-window; kill-window` .
- Configuration file syntax: `{}` , `%if` and so on.
- Mouse key bindings: `MouseDown1Pane` and so on.
- Locking: `lock-command` , `lock-after-time` and other options.
- Capturing pane content with `capture-pane` and piping with `pipe-pane` .
- Linking windows: the `link-window` command.
- Session groups: the `-t` flag to `new-session` .

- Respawing window and panes with `respawn-window` and `respawn-pane`.
- Custom menus with the `display-menu` command and custom prompts with `command-prompt` and `confirm-before`.
- Different key tables: `bind-key` and the `-T` flag to `switch-client`.
- Empty panes: the `split-window` with an empty command and `-I` to `display-message`.
- Hooks: `set-hook` and `show-hooks`.
- Synchronization for scripts with `wait-for`.

Clone this wiki locally

```
https://github.com/tmux/tmux.wiki.git
```