What the tmux?

Dotfiles Indy Meetup | 08.2020 | Clayton Parker

### Who Am I?



### What is it?

tmux == Terminal MUltipleXer

A better screen

#### tmux vs screen

#### Pros

- Client / server model
- Better keybinding support
- Multiple paste buffers
- More modern overall
- BSD licensed

#### Cons

- No serial / telnet terminal
- No support for older platforms and odd terminals

### How it works?

### **Key Bindings**

The prefix in tmux is ctrl + b

To avoid a conflict with screen's ctrl + a

Remap it in your tmux.conf if needed

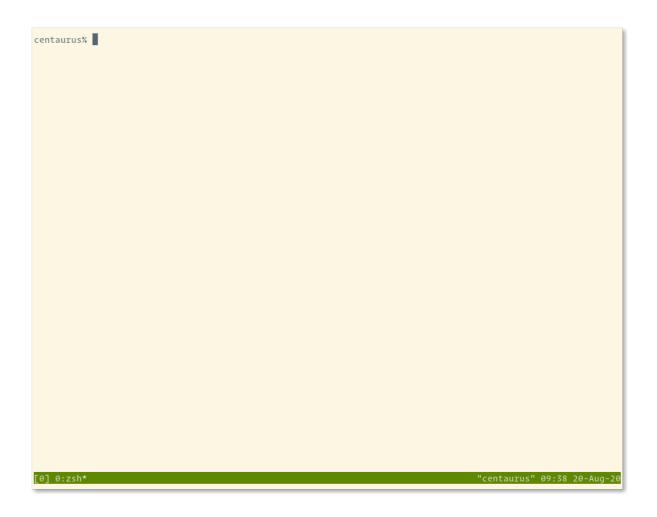
```
# Change the prefix and release ctrl + b
set -g prefix C-a
unbind C-b

# Ability to send ctrl + a to applications still
bind C-a send-prefix
```

### Starting a new session



### Sessions



#### Sessions

```
(0) + 0: 1 windows (attached)
r 0 (sort: index)─
 centaurus%
                                                   0:zsh
[0] 0:[tmux]*
                                                                               "centaurus" 09:38 20-Aug-20
```

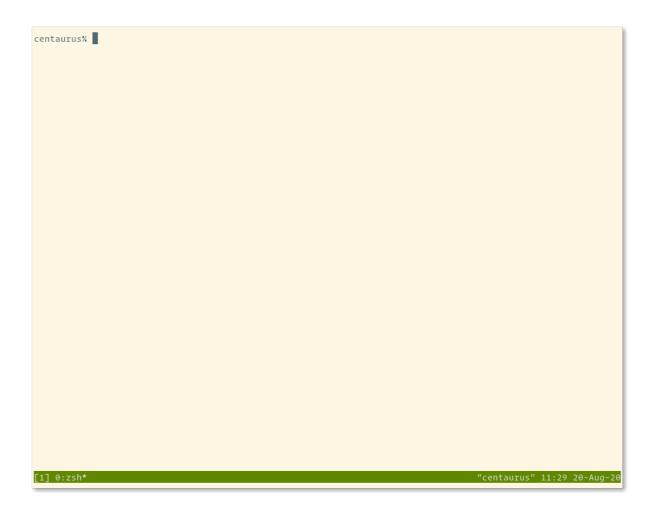
# Detaching

```
centaurus%
```

## Starting another session



### Sessions



#### Sessions

```
(0) + 0: 1 windows
(1) + 1: 1 windows (attached)
r 1 (sort: index)—
 centaurus%
                                                  0:zsh
[1] 0:[tmux]*
                                                                               "centaurus" 09:38 20-Aug-20
```

# Attaching



# Attaching

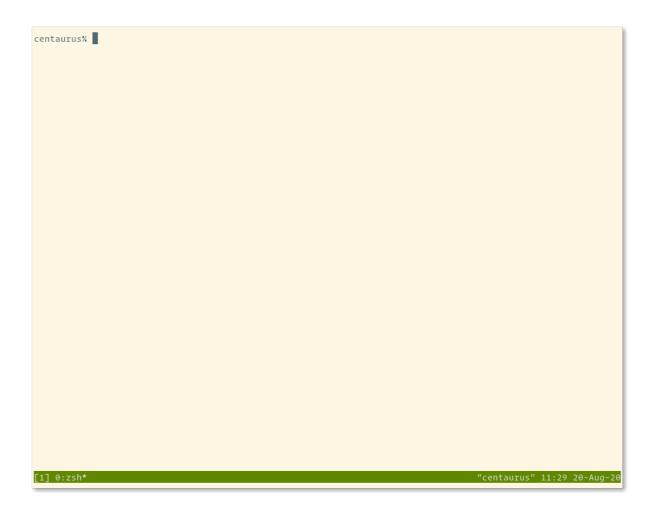
```
centaurus% tmux list-sessions
0: 1 windows (created Thu Aug 20 09:37:20 2020)
1: 2 windows (created Thu Aug 20 09:38:31 2020) (attached)
centaurus%
centaurus% tmux attach-session -t 0
```

# Attaching



### Windows and Panes

### Windows and Panes



# Split Vertically



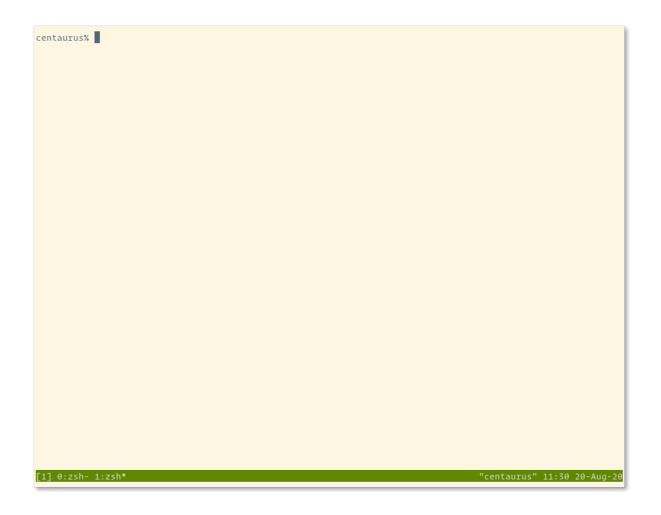
# Split Horizontally

centaurus%	centaurus%
	centaurus%
[1] 0:zsh*	"centaurus" 11:29 20-Aug-20

### Panes

```
(0) + 0: 1 windows
(1) - 1: 1 windows (attached)
(2) → + 0: [tmux]*Z (3 panes)
r 0 (sort: index)—
                                         centaurus%
                                                                                centaurus%
  centaurus%
[1] 0:[tmux]*Z
                                                                                            "centaurus" 11:30 20-Aug-20
```

### **New Window**

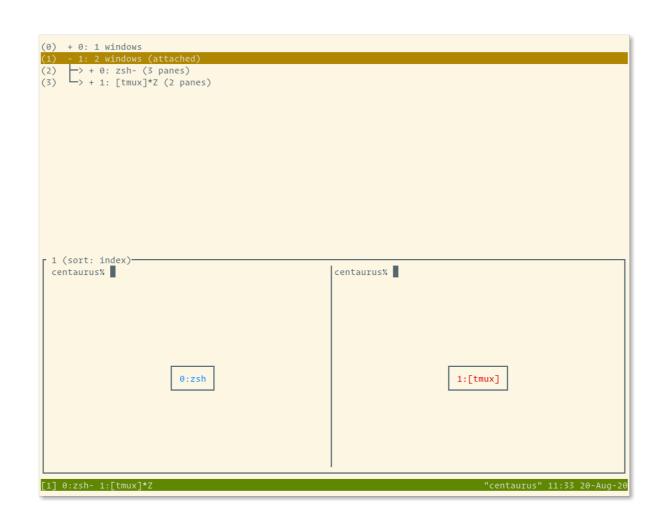


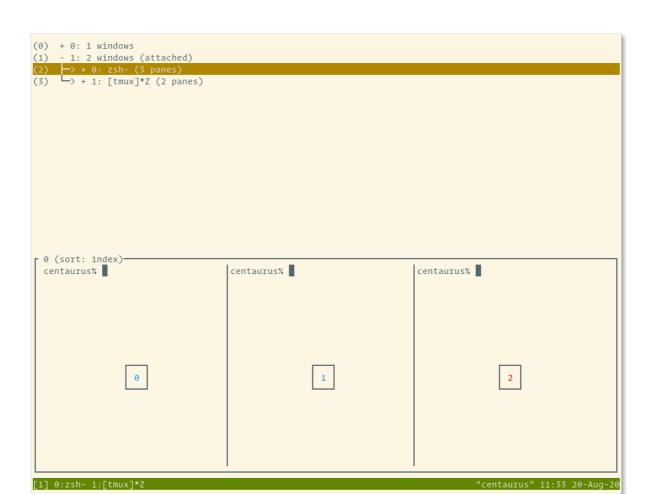
### **New Window**

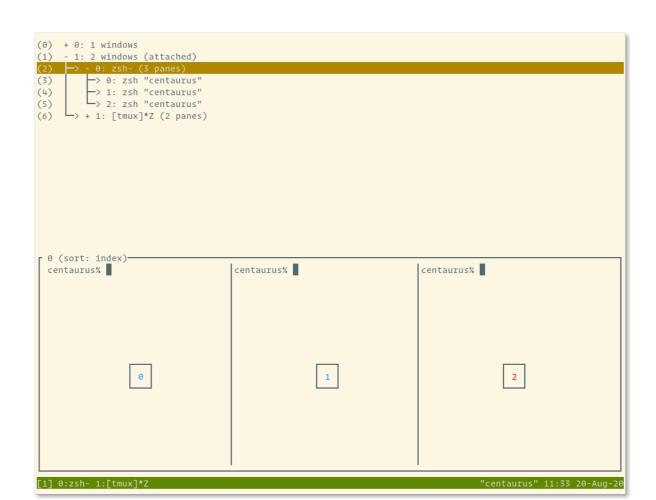
centaurus%	
	_
centaurus%	
[1] 0:zsh- 1:zsh* "centaurus" 11:31 20-Aug-2	0

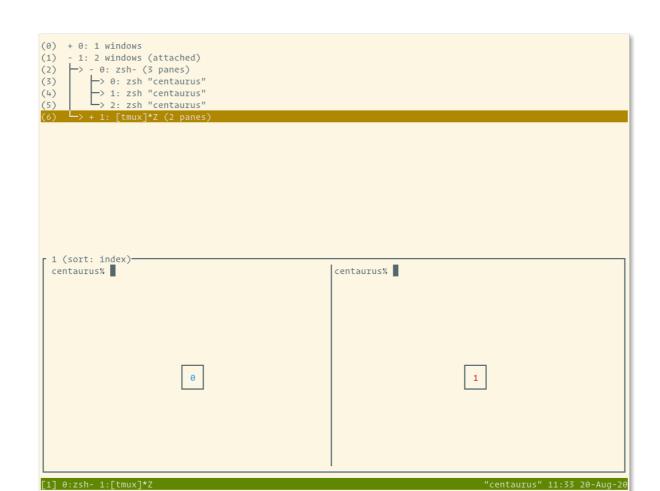
#### **Session List**

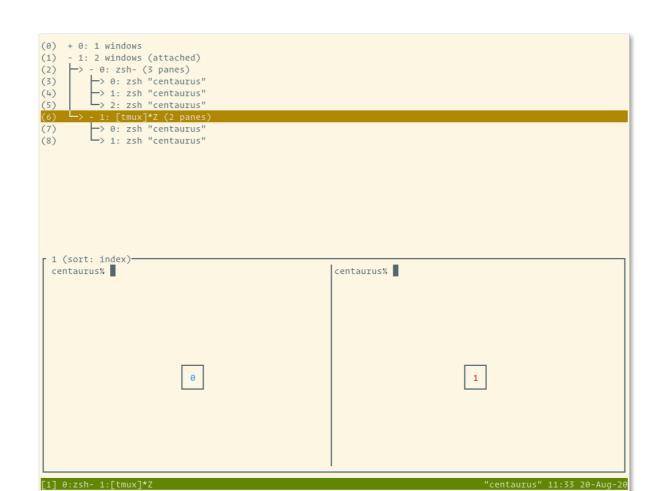
```
(0) + 0: 1 windows
(1) + 1: 2 windows (attached)
r 1 (sort: index)—
                                                    centaurus%
 centaurus%
                                                                           1:[tmux]
                        0:zsh
[1] 0:zsh- 1:[tmux]*Z
                                                                               "centaurus" 11:33 20-Aug-20
```

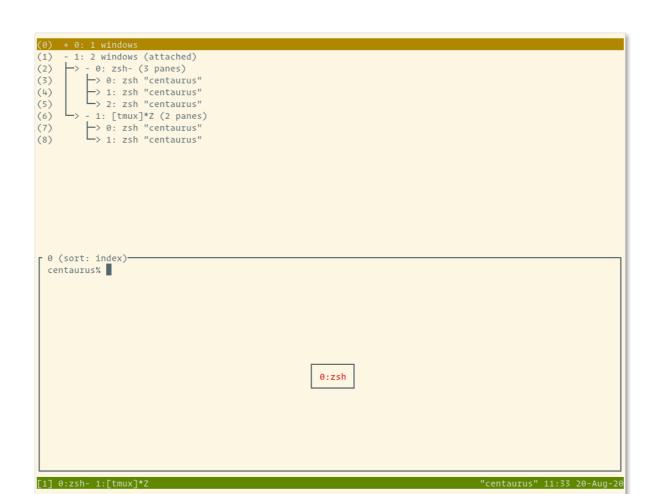


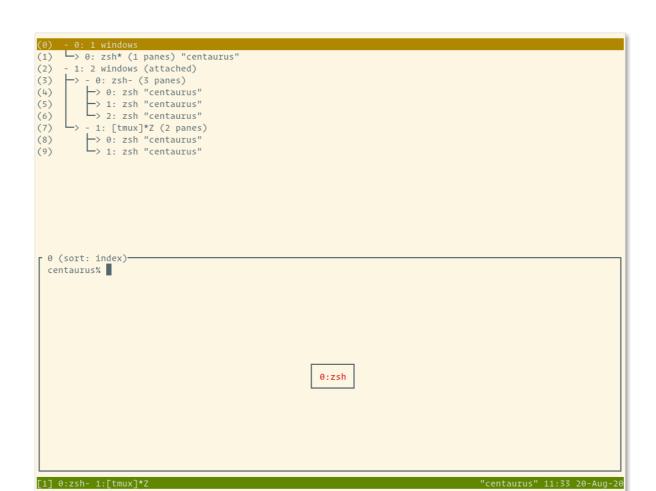












### Pane Selected



Sessions and Windows can have names

```
# My tmux config uses folds in vim.
# zR open all folds
# zM close all folds
# za toggle fold at cursor position
# zj move down to start of next fold
# zk move up to end of previous fold
# General tmux settings
                                                               {{{1}
# set the command prefix to match screen
set -g prefix C-a
unbind C-b
# Allow for C-a C-a to send it to the application
bind C-a send-prefix
# Set the proper terminal type
set -g default-terminal "tmux"
# Set the delay so that it doesn't interfere with applications like
# vim
set -sq escape-time 0
# Make window and pane indexes start with 1
set -g base-index 1
setw -g pane-base-index 1
# use vi key bindings
setw -g mode-keys vi
# turn on mouse mode
setw -g mouse on
# Don't mark the window on right click
unbind -T root MouseDown3Pane
[0] 0:vim*
                                                                                  "centaurus" 14:18 20-Aug-20
```

<pre>print('hello')</pre>	centaurus% tail -f some.log
~ ~	centuality call 1 some.log
N.	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	centaurus% python3 hello.py
~	hello
~	centaurus%
~	
~	
~	
~	
**	
~	
~ ~	
~	
~	
~	
~	
~	
[1] 0:zsh* 1:python3-	"centaurus" 14:18 20-Aug-20
(-)	cerredatus 17.10 20 Mag 20

```
print('hello')
                                                        centaurus% tail -f some.log
                                                        centaurus% python3 hello.py
                                                        hello
                                                        centaurus%
(rename-session) work
```

<pre>print('hello')</pre>	centaurus% tail -f some.log
~	
~	
N .	
N	
N	
N	
N	
N	
~	
N	
~	
~	
~	
~	
~	
~	
~	
~	
~	centaurus% python3 hello.py
~	hello _
~	centaurus%
~	
~	
~	
~	
~	
~	
~	
~	
N .	
~	
~	
~	
~	
~	
[work] 0:zsh* 1:python3-	"centaurus" 14:19 20-Aug-20

```
print('hello')
                                                        centaurus% tail -f some.log
                                                        centaurus% python3 hello.py
                                                        hello
                                                        centaurus%
(rename-window) hello world
```

<pre>print('hello')</pre>	centaurus% tail -f some.log
~	
~	
~	
~	
~	
~	
N	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	centaurus% python3 hello.py
~	hello _
~	centaurus%
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
~	
[work] 0:hello world* 1:python3-	"centaurus" 14:20 20-Aug-20

```
>>> help(print)
Help on built-in function print in module builtins:
print(...)
    print(value, ..., sep=' ', end='\n', file=sys.stdout, flush=False)
    Prints the values to a stream, or to sys.stdout by default.
    Optional keyword arguments:
    file: a file-like object (stream); defaults to the current sys.stdout.
    sep: string inserted between values, default a space.
    end: string appended after the last value, default a newline.
    flush: whether to forcibly flush the stream.
lines 1-11/11 (END)
centaurus%
(rename-window) docs
```

```
>>> help(print)
Help on built-in function print in module builtins:
print(...)
    print(value, ..., sep=' ', end='\n', file=sys.stdout, flush=False)
    Prints the values to a stream, or to sys.stdout by default.
    Optional keyword arguments:
    file: a file-like object (stream); defaults to the current sys.stdout.
    sep: string inserted between values, default a space.
    end: string appended after the last value, default a newline.
    flush: whether to forcibly flush the stream.
lines 1-11/11 (END)
centaurus%
```

"centaurus" 14:20 20-Aug-20

[work] 0:hello world- 1:docs\*

```
# My tmux config uses folds in vim.
# zR open all folds
# zM close all folds
# za toggle fold at cursor position
# zj move down to start of next fold
# zk move up to end of previous fold
# General tmux settings
                                                               {{{1}
# set the command prefix to match screen
set -g prefix C-a
unbind C-b
# Allow for C-a C-a to send it to the application
bind C-a send-prefix
# Set the proper terminal type
set -g default-terminal "tmux"
# Set the delay so that it doesn't interfere with applications like
# vim
set -sq escape-time 0
# Make window and pane indexes start with 1
set -g base-index 1
setw -g pane-base-index 1
# use vi key bindings
setw -g mode-keys vi
# turn on mouse mode
setw -g mouse on
# Don't mark the window on right click
unbind -T root MouseDown3Pane
[0] 0:vim*
                                                                                  "centaurus" 14:18 20-Aug-20
```

```
# My tmux config uses folds in vim.
# zR open all folds
# zM close all folds
# za toggle fold at cursor position
# zj move down to start of next fold
# zk move up to end of previous fold
# General tmux settings
                                                              {{{1}
# set the command prefix to match screen
set -g prefix C-a
unbind C-b
# Allow for C-a C-a to send it to the application
bind C-a send-prefix
# Set the proper terminal type
set -g default-terminal "tmux"
# Set the delay so that it doesn't interfere with applications like
# vim
set -sg escape-time 0
# Make window and pane indexes start with 1
set -g base-index 1
setw -g pane-base-index 1
# use vi key bindings
setw -g mode-keys vi
# turn on mouse mode
setw -g mouse on
# Don't mark the window on right click
unbind -T root MouseDown3Pane
(rename-session) personal
```

```
# My tmux config uses folds in vim.
# zR open all folds
# zM close all folds
# za toggle fold at cursor position
# zj move down to start of next fold
# zk move up to end of previous fold
# General tmux settings
                                                               {{{1}
# set the command prefix to match screen
set -g prefix C-a
unbind C-b
# Allow for C-a C-a to send it to the application
bind C-a send-prefix
# Set the proper terminal type
set -g default-terminal "tmux"
# Set the delay so that it doesn't interfere with applications like
# vim
set -sq escape-time 0
# Make window and pane indexes start with 1
set -g base-index 1
setw -g pane-base-index 1
# use vi key bindings
setw -g mode-keys vi
# turn on mouse mode
setw -g mouse on
# Don't mark the window on right click
unbind -T root MouseDown3Pane
[personal]0:vim*
```

```
# My tmux config uses folds in vim.
# zR open all folds
# zM close all folds
# za toggle fold at cursor position
# zj move down to start of next fold
# zk move up to end of previous fold
# General tmux settings
                                                              {{{1}
# set the command prefix to match screen
set -g prefix C-a
unbind C-b
# Allow for C-a C-a to send it to the application
bind C-a send-prefix
# Set the proper terminal type
set -g default-terminal "tmux"
# Set the delay so that it doesn't interfere with applications like
# vim
set -sg escape-time 0
# Make window and pane indexes start with 1
set -g base-index 1
setw -g pane-base-index 1
# use vi key bindings
setw -g mode-keys vi
# turn on mouse mode
setw -g mouse on
# Don't mark the window on right click
unbind -T root MouseDown3Pane
(rename-window) dotfiles
```

```
# My tmux config uses folds in vim.
# zR open all folds
# zM close all folds
# za toggle fold at cursor position
# zj move down to start of next fold
# zk move up to end of previous fold
# General tmux settings
                                                               {{{1}
# set the command prefix to match screen
set -g prefix C-a
unbind C-b
# Allow for C-a C-a to send it to the application
bind C-a send-prefix
# Set the proper terminal type
set -g default-terminal "tmux"
# Set the delay so that it doesn't interfere with applications like
# vim
set -sq escape-time 0
# Make window and pane indexes start with 1
set -g base-index 1
setw -g pane-base-index 1
# use vi key bindings
setw -g mode-keys vi
# turn on mouse mode
setw -g mouse on
# Don't mark the window on right click
unbind -T root MouseDown3Pane
[personal]0:dotfiles*
```

```
(0) - personal: 1 windows (attached)
(1) > 0: dotfiles* (1 panes) "centaurus"
(2) - work: 2 windows
(3) -> + 0: hello world- (3 panes)
(4) -> + 1: docs* (2 panes)
 personal (sort: index)—
  # set the command prefix to match screen
  set -g prefix C-a
  unbind C-b
  # Allow for C-a C-a to send it to the application
  bind C-a send-prefix
  # Set the proper terminal type
  set -g default-terminal "tmux"
  # Set the delay so that it doesn't interfere w 0:dotfiles | ns like
  # vim
  set -sg escape-time 0
  # Make window and pane indexes start with 1
  set -g base-index 1
  setw -g pane-base-index 1
[personal]0:dotfiles*
```

(0) - personal: 1 windows (attached) (1) → 0: dotfiles* (1 panes) "centaurus"  (2) - work: 2 windows (3) → + 0: hello world- (3 panes) (4) → + 1: docs* (2 panes)	
work (sort: index)  centaurus% python3 hello.py  hello  centaurus%	
0:hello world	1:docs
[personal]0:dotfiles*	nes 1-11/11 (END) "centaurus" 14:22 20-Aug-20

## **Key Bindings**

Vi and Emacs layouts for copy mode

Defaults are vague and hard to remember

Remap things to suit your style (read the Brian Hogan book)

#### Pane Movement

By default movement between panes is

prefix + <arrows>

#### Pane Movement

Set up vi style movement

```
bind C-h select-pane -L
bind C-j select-pane -D
bind C-k select-pane -U
bind C-l select-pane -R
```

## Pane Resizing

```
bind -r H resize-pane -L 5
bind -r J resize-pane -D 5
bind -r K resize-pane -U 5
unbind L
bind -r L resize-pane -R 5
```

## **Splitting**

```
unbind '"'
unbind %
bind | split-window -h -c "#{pane_current_path}"
bind - split-window -v -c "#{pane_current_path}"
bind c new-window -c "#{pane_current_path}"
```

# Modality

Like vi, tmux has different modes

#### **Command Mode**



#### **Command Mode**

```
2: 1 windows (created Thu Aug 20 16:14:34 2020) (attached)
                                                                                                         [0/0]
personal: 1 windows (created Thu Aug 20 12:12:29 2020) (attached)
work: 2 windows (created Thu Aug 20 12:14:27 2020)
```

```
# pane window client
                                                                                                       [0/118]
# Put switch client back into place (was L)
unbind "'"
bind -r "'" switch-client -l
# Switch to last window
unbind ':'
bind -r ';' last-window
# Re-define swtich to last pane, so this is easier to remember
bind -r l last-pane
                                                               {{{1
# Appearance Settings
# Show notices when there is activity on another window
setw -g monitor-activity on
set -g visual-activity off
# Theme based on tmuxline
source-file ~/.tmux/tmuxline.tmux
# Status Line
                                                              {{{1
# Force utf-8
set -gq status-utf8 on
# Localized settings for an OS
source-file ~/.tmux.local
# turn on folds
# vim: fdm=marker
centaurus%
[personal]0:dotfiles*
                                                                                   "centaurus" 17:46 20-Aug-20
```

```
# pane window client
                                                                                                      Γ0/1187
# Put switch client back into place (was L)
unbind "'"
bind -r "'" switch-client -l
# Switch to last window
unbind ':'
bind -r ';' last-window
# Re-define swtich to last pane, so this is easier to remember
bind -r l last-pane
                                                               {{{1
# Appearance Settings
# Show notices when there is activity on another window
setw -g monitor-activity on
set -g visual-activity off
# Theme based on tmuxline
source-file ~/.tmux/tmuxline.tmux
# Status Line
                                                              {{{1
# Force utf-8
set -gq status-utf8 on
# Localized settings for an OS
                                                             {{{1
source-file ~/.tmux.local
# turn on folds
# vim: fdm=marker
centaurus%
(search up) vi
```

```
(1/22 results) [0/118]
# pane window client
# Put switch client back into place (was L)
unbind "'"
bind -r "'" switch-client -l
# Switch to last window
unbind ';'
bind -r ';' last-window
# Re-define swtich to last pane, so this is easier to remember
bind -r l last-pane
                                                               {{{}
# Appearance Settings
# Show notices when there is activity on another window
setw -g monitor-activity on
set -g visual-activity off
# Theme based on tmuxline
source-file ~/.tmux/tmuxline.tmux
# Status Line
                                                               {{{1
# Force utf-8
set -gq status-utf8 on
# Localized settings for an OS
                                                               {{{1
source-file ~/.tmux.local
# turn on folds
# lim: fdm=marker
centaurus%
[personal]0:dotfiles*
                                                                                   "centaurus" 17:24 20-Aug-20
```

```
Γ89/118<sup>-</sup>
set -sg escape-time 0
# use vi key bindings
setw -a mode-kevs vi
# turn on mouse mode
setw -g mouse on
# Don't mark the window on right click
unbind -T root MouseDown3Pane
bind -n WheelUpPane if-shell -F -t = "#{mouse_any_flag}" "send-keys -M" "if -Ft= '#{pane_in_mode}' 'send-keys
-M' 'copy-mode -e'"
bind -n WheelDownPane select-pane -t= \; send-keys -M
# Default is to copy and cancel selection, this copys to the clipboard and leaves the selection
bind-key -T copy-mode-vi MouseDragEnd1Pane send-keys -X copy-pipe "pbcopy" \; display-message 'text copied to
clipboard!'
# copy pasta
bind-key -T copy-mode-vi Enter send-keys -X copy-pipe "pbcopy" \; display-message 'Text copied to clipboard!'
bind-key -T copy-mode-vi y send-keys -X copy-pipe "pbcopy" \; display-message 'Text copied to clipboard!'
# vi like copy mode
# from https://twitter.com/nickmorrott/status/928343075646210050?s=09
bind -T copy-mode-vi v send-keys -X begin-selection
bind -T copy-mode-vi V send-keys -X select-line
bind -T copy-mode-vi C-v send-keys -X rectangle-toggle \; send-keys -X begin-selection
bind -T copy-mode-vi Escape send-keys -X cancel
# set the scrollback
set -g history-limit 200000
# force tmux to use utf-8
setw -gq utf8 on
                                                                  {{{1
# Custom key bindings
「personal]0:dotfiles*
```

```
# pane window client
# Put switch client back into place (was L)
unbind "'"
bind -r "'" switch-client -l
# Switch to last window
unbind ';'
bind -r ';' last-window
# Re-define swtich to last pane, so this is easier to remember
bind -r l last-pane
                                                        {{{1
# Appearance Settings
# Show notices when there is activity on another window
setw -g monitor-activity on
set -g visual-activity off
# Theme based on tmuxline
source-file ~/.tmux/tmuxline.tmux
# Status Line
                                                        {{{1
# Force utf-8
set -gq status-utf8 on
# Localized settings for an OS
                                                        {{{1
source-file ~/.tmux.local
# turn on folds
# vim: fdm=marker
centaurus%
:list-buffers
```

buff dex	fer0: 1\01	90 2"	bytes:	"#	Make	window	and	pane	indexes	start	with	1\012set	- 9	base-index	1\012setw	-g	pane-ba <mark>[0/</mark> 0	ə]
F		170	1-1-6:3													47	25. 20. 4	20
Fher	. 3011a	1]0.	:dotfile	- 2											cencaurus	Ι/.	25 20-Aug-:	20

#### Enhance Copy Mode

```
bind-key -T copy-mode-vi Enter send-keys -X copy-pipe "pbcopy" \; display-message
bind-key -T copy-mode-vi y send-keys -X copy-pipe "pbcopy" \; display-message 'Tex

# vi-ish bindings
bind -T copy-mode-vi v send-keys -X begin-selection
bind -T copy-mode-vi V send-keys -X select-line
bind -T copy-mode-vi C-v send-keys -X rectangle-toggle \; send-keys -X begin-selec
bind -T copy-mode-vi Escape send-keys -X cancel
```

#### Mouse Mode

```
# turn on mouse mode
setw -g mouse on

# Don't mark the window on right click
unbind -T root MouseDown3Pane
bind -n WheelUpPane if-shell -F -t = "#{mouse_any_flag}" "send-keys -M" "if -Ft= 's
bind -n WheelDownPane select-pane -t= \; send-keys -M

# Default is to copy and cancel selection, this copys to the clipboard and leaves
bind-key -T copy-mode-vi MouseDragEnd1Pane send-keys -X copy-pipe "pbcopy" \; disp
```

## More Config Examples

```
# Set the scrollback
set -g history-limit 2000000

# Set the delay so that it doesn't interfere with applications like vim
set -sg escape-time 0

# Make window and pane indexes start with 1
set -g base-index 1
setw -g pane-base-index 1

# Create a new session
bind S new-session
```

## Community

Plugins

Themes

Status line helpers

#### Status line

```
1 # My tmux config uses folds in vim. -
 2 #7
 3 # ZR open all folds
 4 # ZM close all folds
 5 # za toggle fold at cursor position
 6 # zi move down to start of next fold
 7 # zk move up to end of previous fold
 9 # General tmux settings
                                                          {{{17
12 # set the command prefix to match screen
13 set -g prefix C-a¬
14 unbind C-b7
15 # Allow for C-a C-a to send it to the application
16 bind C-a send-prefix
NORMAL > SPELL [EN] +0 ~0 -0 .tmux.conf
( My name is Zach Galifianakis, I hope I'm pronouncing that right. )
 - Zach Galifianakis
      o (xx)\____
         U || -- -- w |

─ 16:34 Thu, Aug 20 ─ /home/clayton ─ 
└ centaurus% ─ ▮
personal 1* > dotfiles
```

# Managing Environments

Teamocil, Tmuxinator, And many more...

#### Clients

Language libraries like python, ruby, etc.

## Pair Programming

Using tools like wemux to remote pair

#### **Alternatives**

Tiling Window Mangers

Builtin to terminal (e.g. iTerm2, Kitty, etc)

#### Links

- My Dotfiles
- Awesome tmux
- wemux
- Teamocil
- Tmuxinator

#### Books

- Brian Hogan's tmux 2 Productive Mouse-Free Development
- Tao of tmux free online book

These books are both based on tmux 2, not the latest, but still very informative

#### FIN