

Tmux

zjlin

What is tmux?

Terminal multiplexer

可以開很多分頁(terminal)



```
zjlin@nasa:~ %  
zjlin@nasa:~ %
```

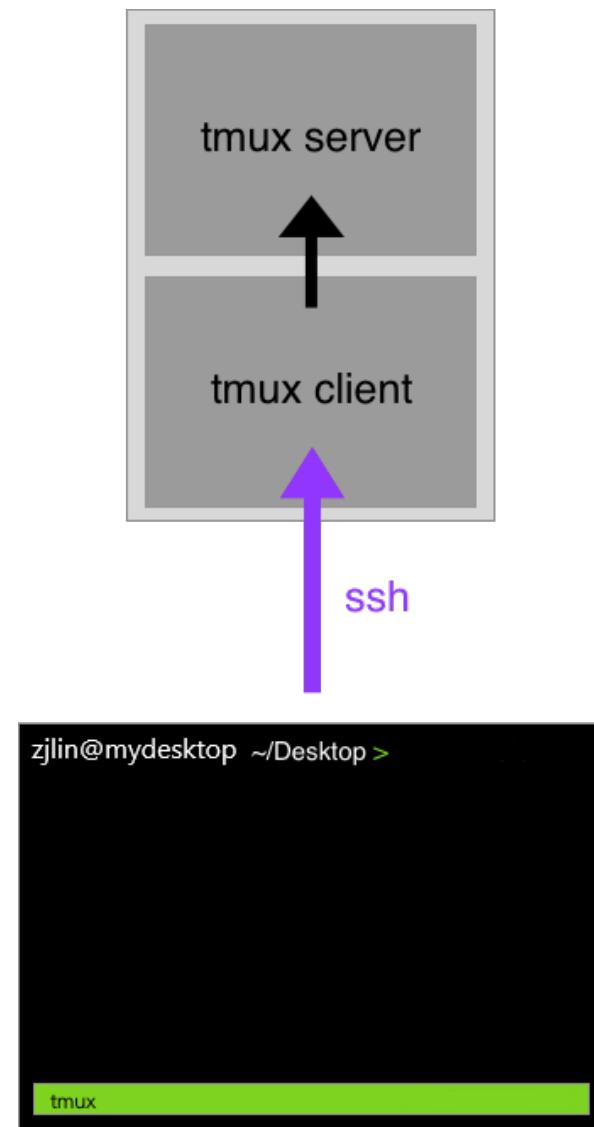
```
[0] 0:tcsh* 1:tcsh- 2:tcsh 3:tcsh 4:tcsh 5:tcsh 6:tcsh 7:tcsh
```

What is tmux?

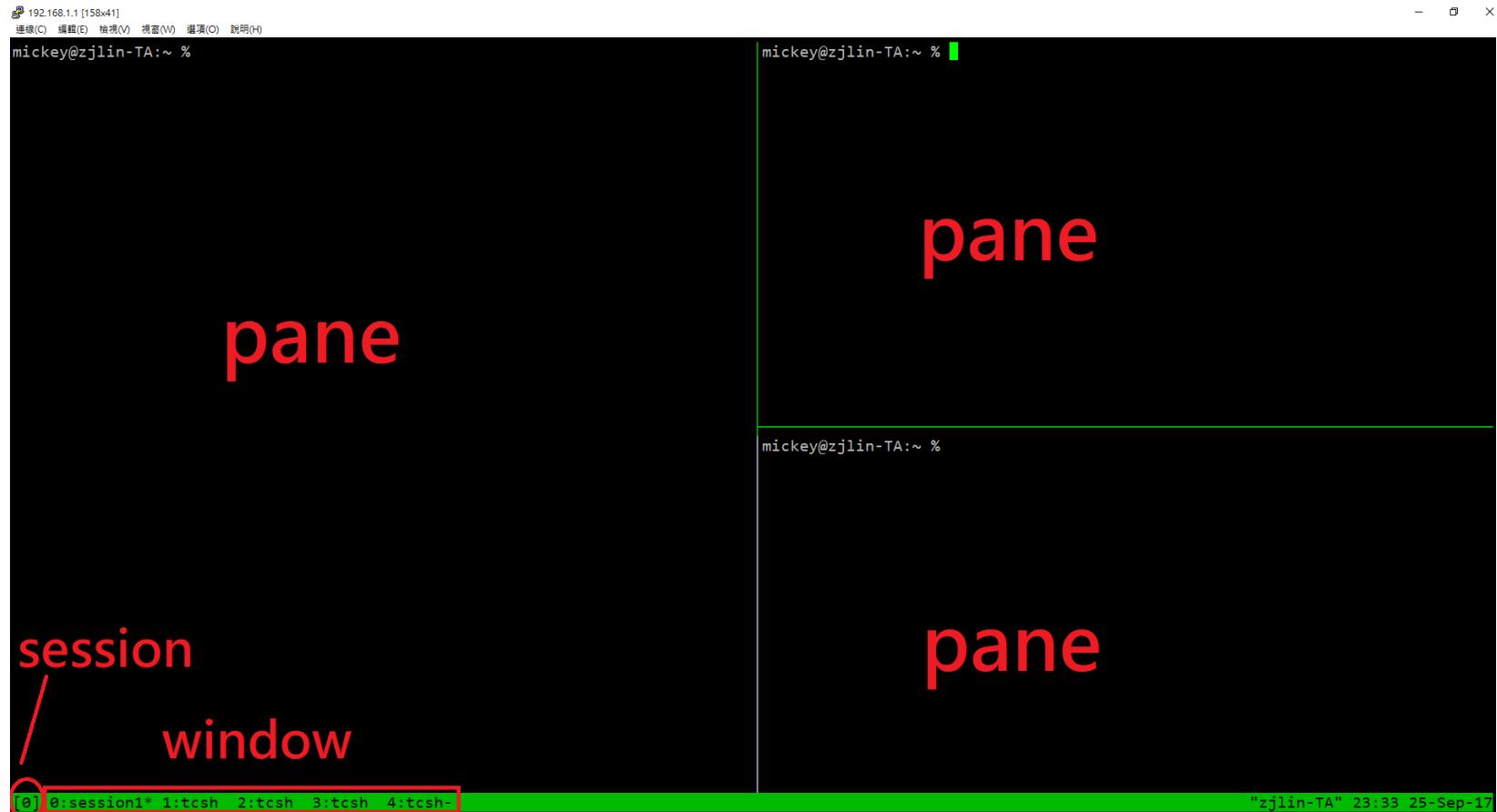
```
zjlin@nasa:~ %  
zjlin@nasa:~ % [■]
```

```
[0] 0:tcsh* 1:tcsh- 2:tcsh 3:tcsh 4:tcsh 5:tcsh 6:tcsh 7:tcsh
```

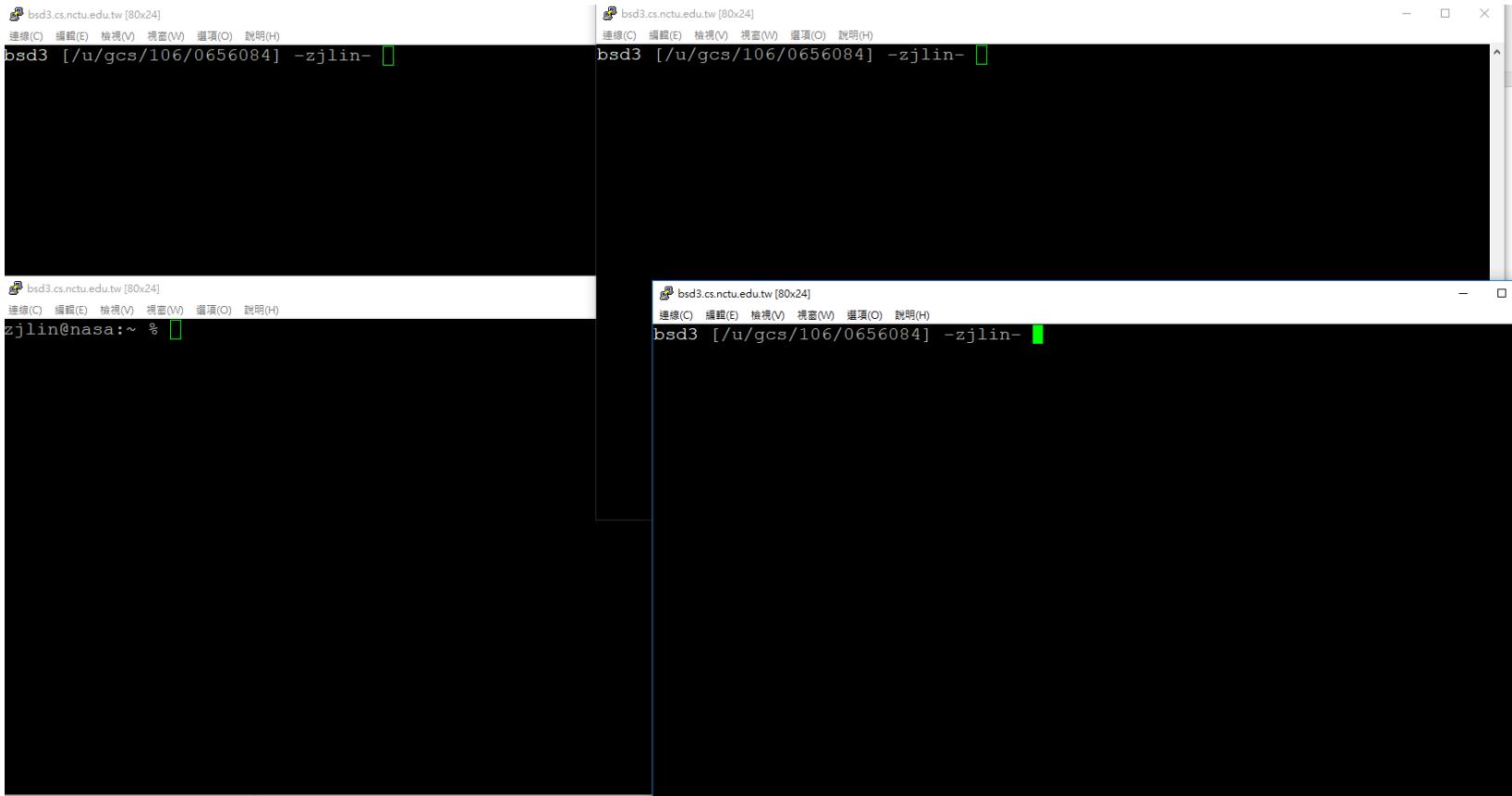
What is tmux?



What is tmux?



Why should I use tmux?



Why should I use tmux?

The screenshot shows a tmux session running on an Ubuntu desktop. The terminal window has a red border and displays the output of the `ifconfig` command. The session is divided into four panes:

- Top-left pane: Shows the output of `ifconfig` for interface `enp0s20f0u4c4i2`, which is currently inactive (Link encap:Ethernet HWaddr 3e:ab:8e:2e:f8:cf).
- Top-right pane: Shows the output of `ifconfig` for interface `enp0s31f6`, which is active (Link encap:Ethernet HWaddr fe80::9eb0:d0c1:882f:f2d6/64). It provides detailed statistics for RX and TX traffic.
- Bottom-left pane: Shows the output of `ifconfig` for interface `lo`, which is a loopback interface (Link encap:Local Loopback). It also provides detailed statistics for RX and TX traffic.
- Bottom-right pane: Displays the last login information: "Last login: Mon Sep 25 11:13:14 on ttys000".

The tmux session is running on a desktop environment with an "ubuntu" logo visible in the background.

```
@WorkStationNCTU:~$ ifconfig
enp0s20f0u4c4i2 Link encap:Ethernet HWaddr 3e:ab:8e:2e:f8:cf
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

enp0s31f6 Link encap:Ethernet HWaddr fe80::9eb0:d0c1:882f:f2d6/64 Scope:Link
          inet addr: 192.168.1.103 Bcast: 192.168.1.255 Mask:255.255.255.0
          inet6 addr: fe80::9eb0:d0c1:882f:f2d6/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
          RX packets:16212252 errors:0 dropped:651884 overruns:0 frame:0
          TX packets:11819759 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:10013427582 (10.0 GB) TX bytes:10220362185 (10.2 GB)
          Interrupt:16 Memory:f7000000-f7020000

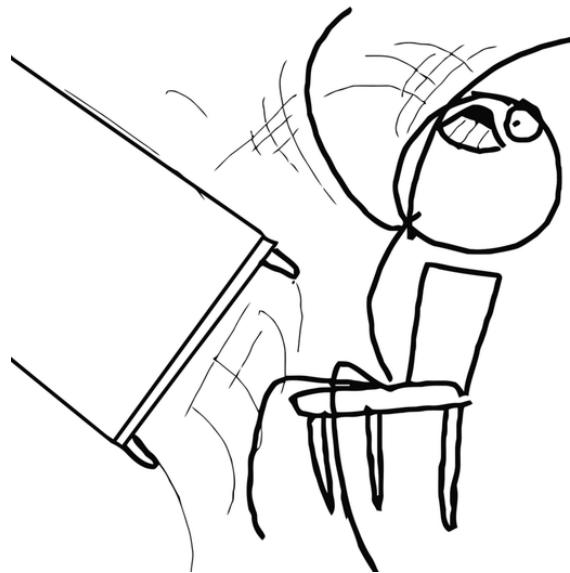
lo      Link encap:Local Loopback
          inet addr:127.0.0.1 Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING MTU:65536 Metric:1
          RX packets:1134013 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1134013 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000

Last login: Mon Sep 25 11:13:14 on ttys000
```

Why should I use tmux?

□ 程式 debug 到一半沒存檔斷線？

□ 更新到一半斷線？



Advantage of tmux

- 同時管理多個 session, window, pane
- 保留工作狀態隨時 attach/detach
- 強大的畫面分割
- 同時 attach => 分享畫面



Start tmux

❑ tmux

❑ tmux attach [-t <number>]

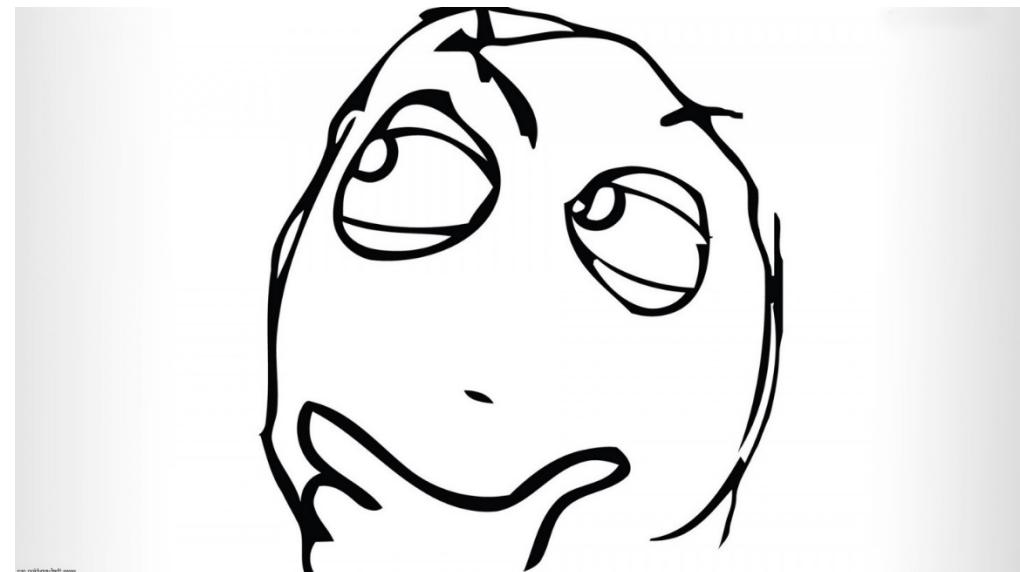
❑ tmux detach

❑ tmux ls

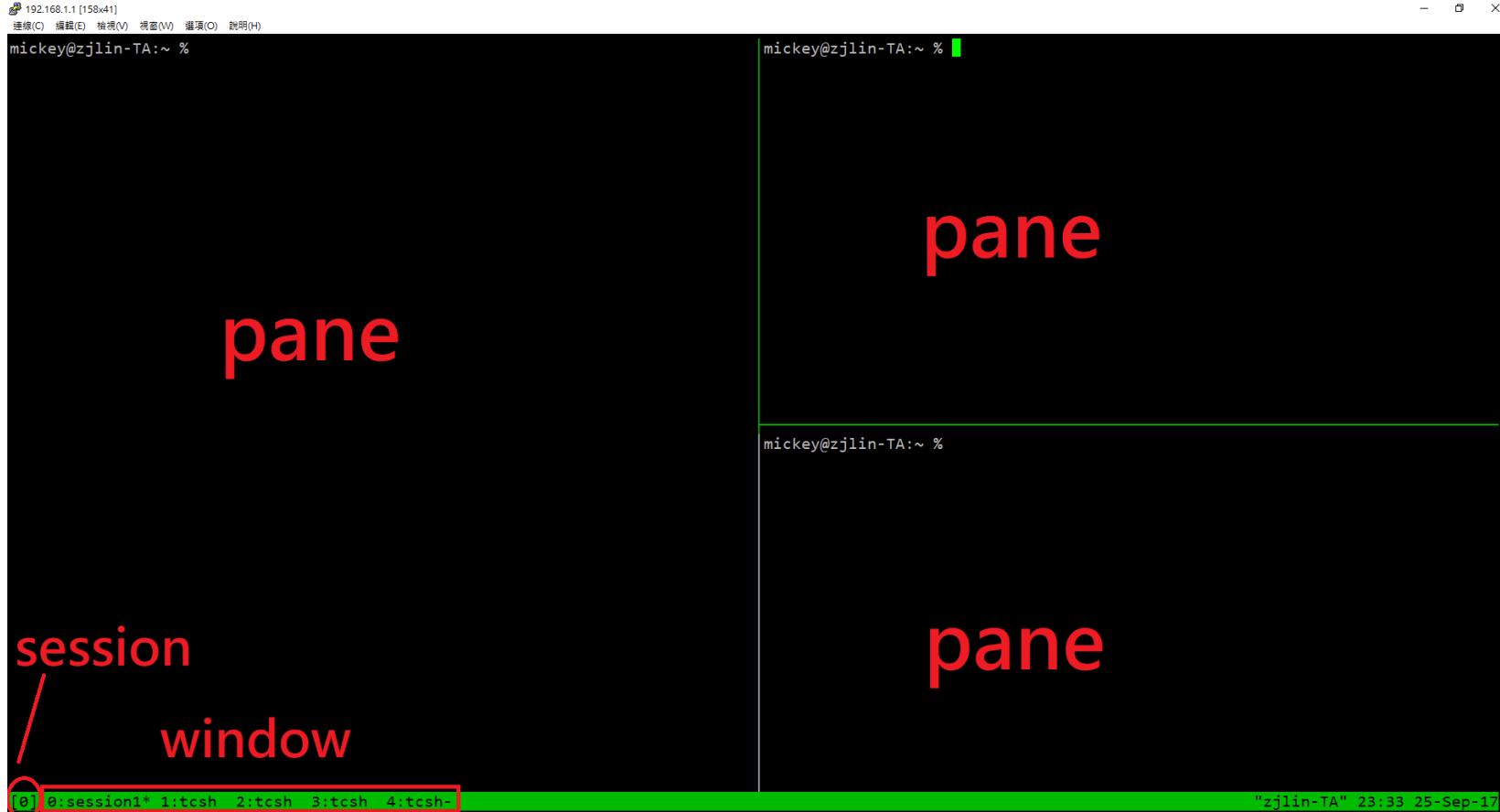
❑ tmux kill-session [<number>]

Tmux - session, window, pane

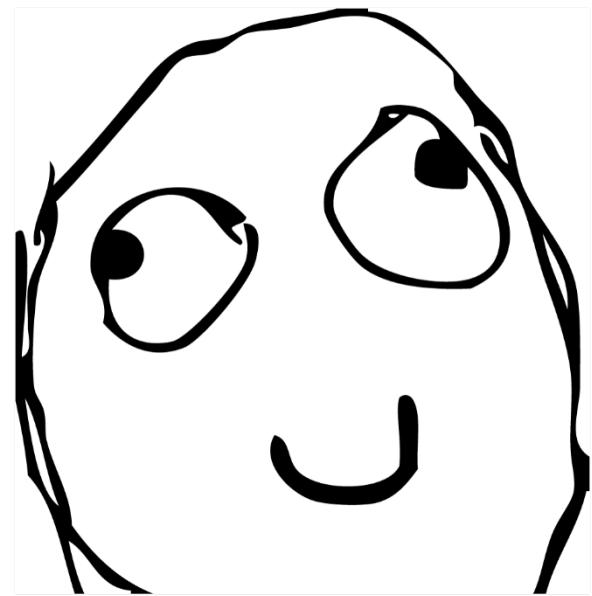
- ❑ session - browser
- ❑ window - tab
- ❑ pane - split window



Tmux - session, window, pane



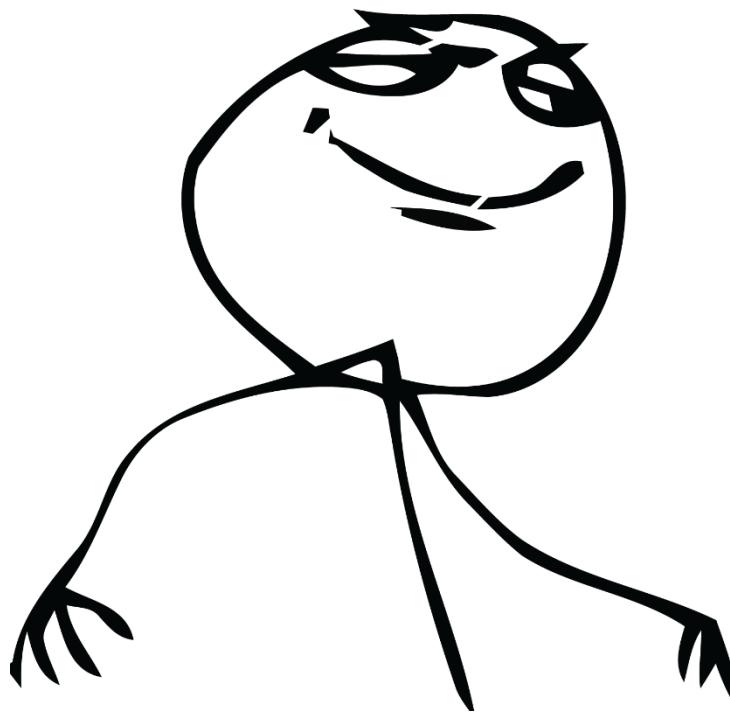
tmux 101



Bindkey - window

<p>bindkey (default is C-b) //C === control</p>	c	new-window
	n	next-window
	p	previous-window
	l	last-window
	<num>	select-window -t := <num>
	&	confirm-before -p "kill-window #W? (y/n)" kill-window
	,	command-prompt -I "#W" "rename-window '%%%'"
	.	command-prompt "move-window -t '%%%'"

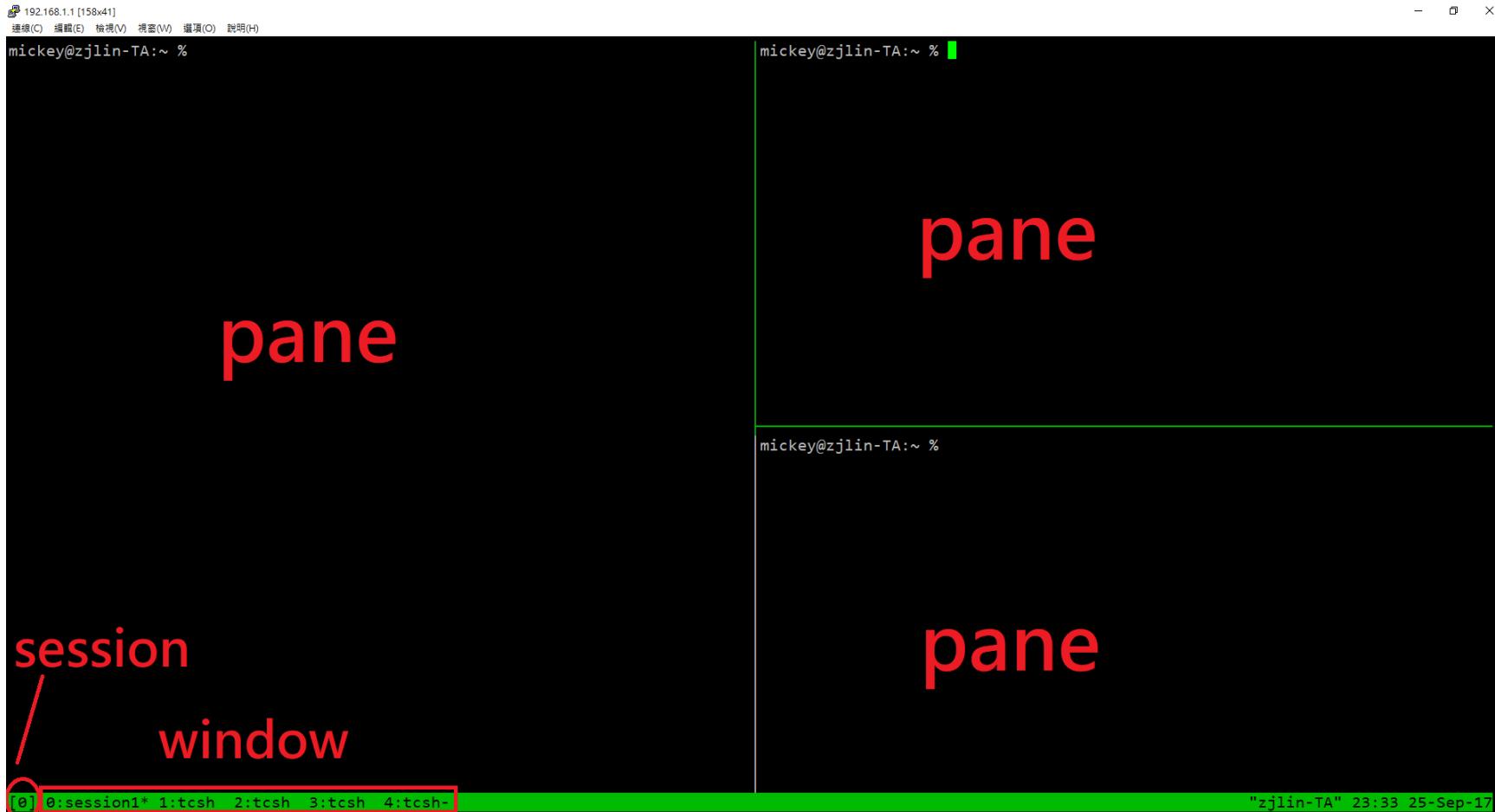
more skill



Bindkey - pane

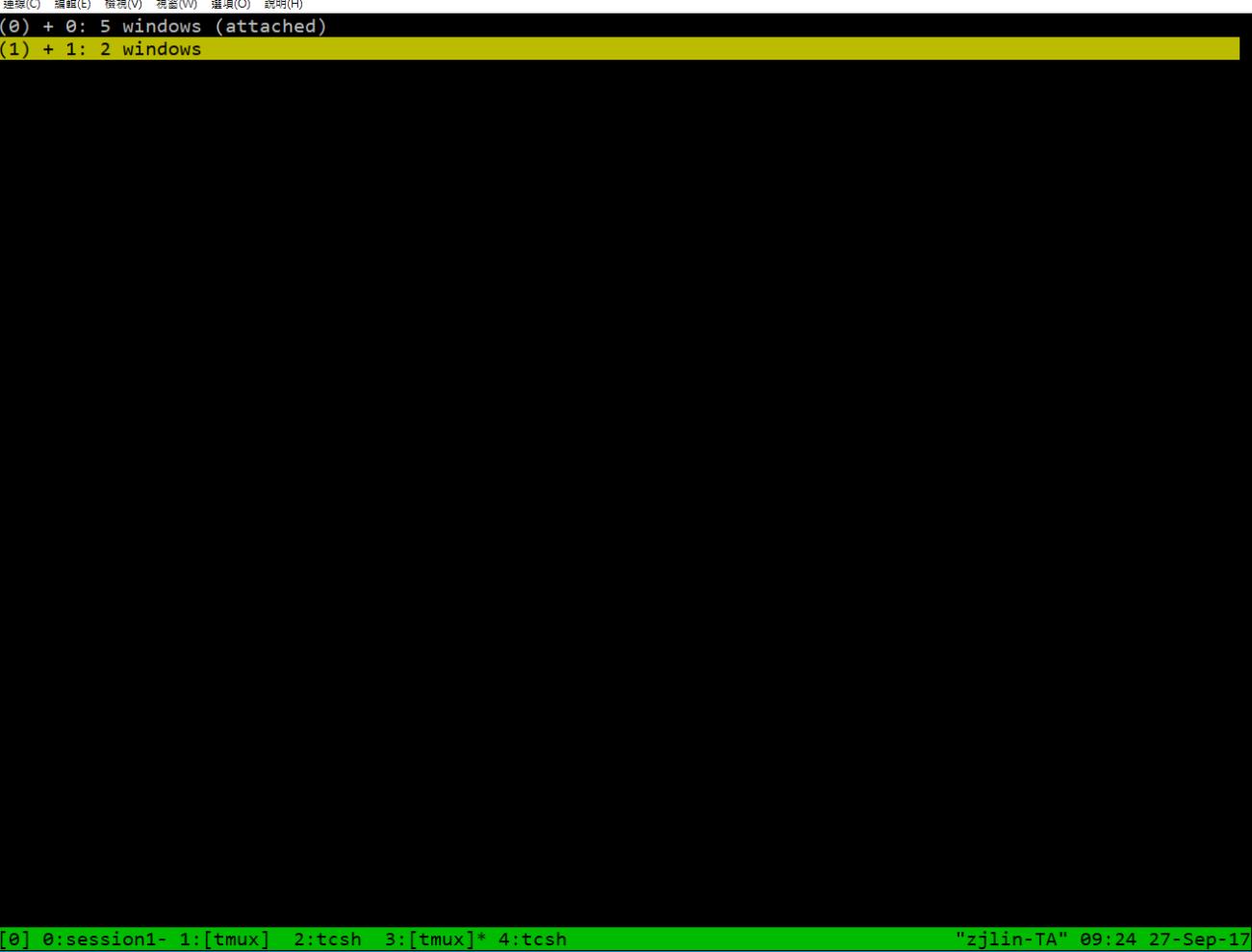
bindkey (default is C-b) //C === control	%	split-window -h
	"	split-window
	方向鍵	select-pane
	alt+方向鍵	resize-pane
	x	confirm-before -p "kill-pane #P? (y/n)" kill-pane
	{	swap-pane -U
	}	swap-pane -D

Tmux - session, window, pane



Bindkey - session

- 多開幾個瀏覽器

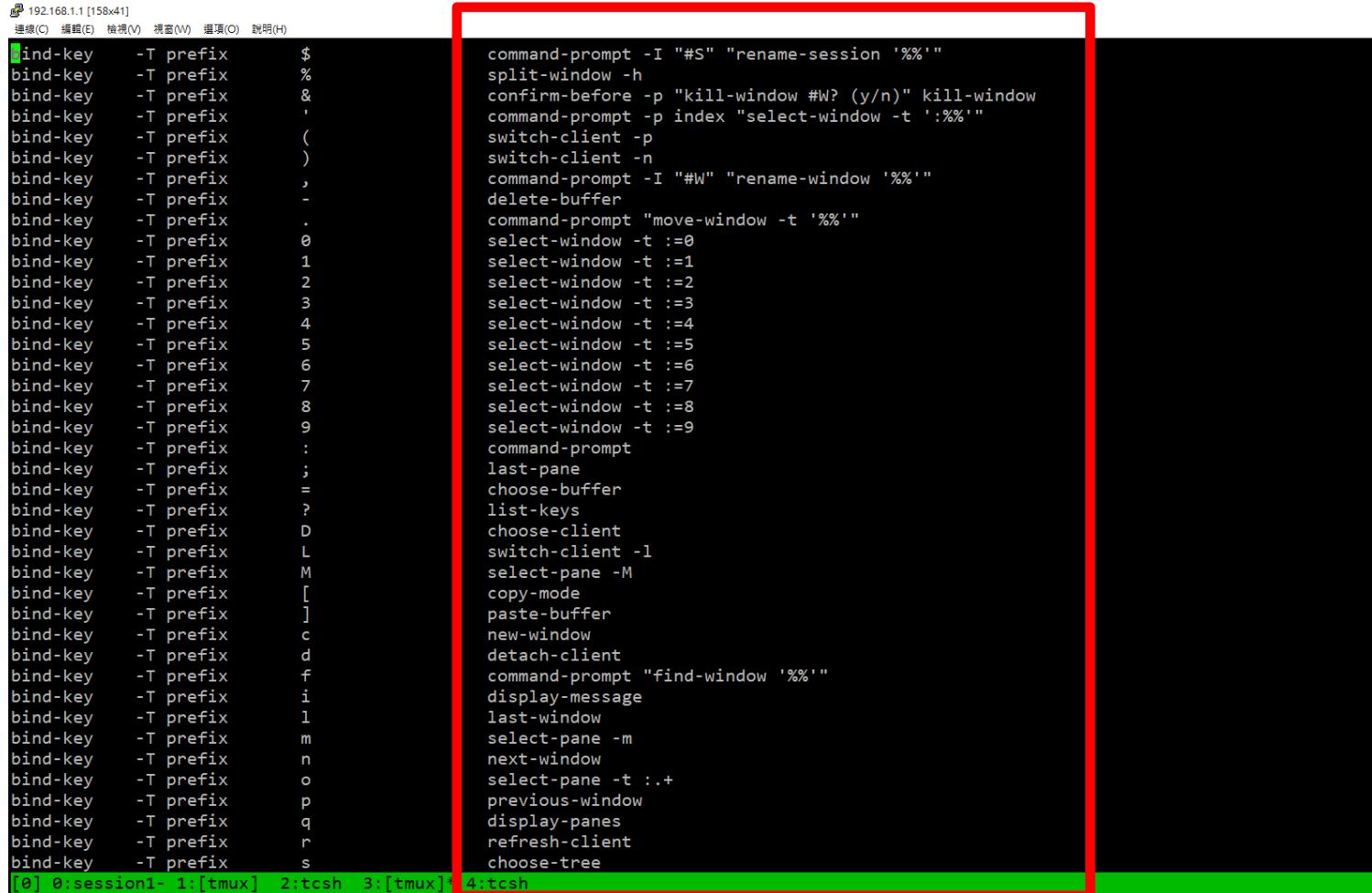


The screenshot shows a tmux session with two panes. The top pane displays a menu bar with options: 連線(C), 檢證(E), 檢視(V), 視窗(W), 選項(O), and 說明(H). Below the menu, it shows '(0) + 0: 5 windows (attached)' and '(1) + 1: 2 windows'. The bottom pane is mostly black, indicating it is currently inactive or has no visible content.

```
[0] 0:session1- 1:[tmux] 2:tcsh 3:[tmux]* 4:tcsh "zjlin-TA" 09:24 27-Sep-17
```

Tmux - bindkey

□ bindkey + ?



192.168.1.1 [158x41]
連線(C) 編輯(E) 檢視(V) 視窗(W) 儲存(O) 說明(H)

bind-key	-T prefix	\$
bind-key	-T prefix	%
bind-key	-T prefix	&
bind-key	-T prefix	'
bind-key	-T prefix	(
bind-key	-T prefix)
bind-key	-T prefix	,
bind-key	-T prefix	-
bind-key	-T prefix	.
bind-key	-T prefix	0
bind-key	-T prefix	1
bind-key	-T prefix	2
bind-key	-T prefix	3
bind-key	-T prefix	4
bind-key	-T prefix	5
bind-key	-T prefix	6
bind-key	-T prefix	7
bind-key	-T prefix	8
bind-key	-T prefix	9
bind-key	-T prefix	:
bind-key	-T prefix	;
bind-key	-T prefix	=
bind-key	-T prefix	?
bind-key	-T prefix	D
bind-key	-T prefix	L
bind-key	-T prefix	M
bind-key	-T prefix	[
bind-key	-T prefix]
bind-key	-T prefix	c
bind-key	-T prefix	d
bind-key	-T prefix	f
bind-key	-T prefix	i
bind-key	-T prefix	l
bind-key	-T prefix	m
bind-key	-T prefix	n
bind-key	-T prefix	o
bind-key	-T prefix	p
bind-key	-T prefix	q
bind-key	-T prefix	r
bind-key	-T prefix	s

command-prompt -I "#S" "rename-session '%'"
split-window -h
confirm-before -p "kill-window #W? (y/n)" kill-window
command-prompt -p index "select-window -t ':%'"
switch-client -p
switch-client -n
command-prompt -I "#W" "rename-window '%'"
delete-buffer
command-prompt "move-window -t '%'"
select-window -t :=0
select-window -t :=1
select-window -t :=2
select-window -t :=3
select-window -t :=4
select-window -t :=5
select-window -t :=6
select-window -t :=7
select-window -t :=8
select-window -t :=9
command-prompt
last-pane
choose-buffer
list-keys
choose-client
switch-client -l
select-pane -M
copy-mode
paste-buffer
new-window
detach-client
command-prompt "find-window '%'"
display-message
last-window
select-pane -m
next-window
select-pane -t :.+
previous-window
display-panes
refresh-client
choose-tree

[0] 0:session1- 1:[tmux] 2:tcsh 3:[tmux] 4:tcsh

Tmux - command

□ command

- bindkey + :

```
jail [/u/gcs/106/0656084] -zjlin-
jail [/u/gcs/106/0656084] -zjlin-
```

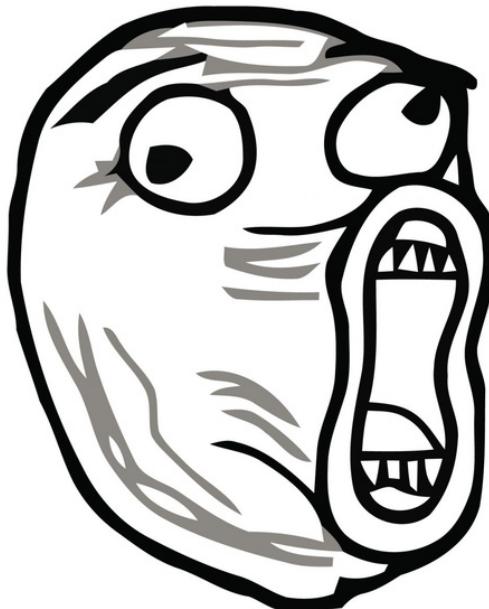
```
:next-window
```

Feel unfriendly?



Configuration - tmux.conf

- ❑ `~/.tmux.conf`
- ❑ design yourself style
- ❑ colorful



ultrad.com.br

Configuration - tmux.conf

□ ~/.tmux.conf

```
1 set -g status-utf8 on
2 setw -g utf8 on
3 # GENERAL SETTING
4 bind-key r source-file ~/.tmux.conf; display-message "~/.tmux.conf is reloaded"
5 set-window-option -g automatic-rename off
6 set-option -g default-terminal "xterm"
7 set-option -g prefix C-a
8
9 # STATUSBAR STYLE
10 # main
11 set-option -g status-bg colour236
12 set-option -g status-fg colour166
13 setw -g window-status-current-format "#I:#W#F"
14 setw -g window-status-current-fg colour215
15
16 #left
17 set-option -g status-left ''
18 set-option -g status-left-length 0
19
20 #right
21 set-option -g status-right "#h [%Y-%m-%d %H:%M]"
22 # BIND KEY
23 bind -n F8 previous-window
24 bind -n F9 next-window
25 bind -n F10 last-window
26 bind -n M-Right next-window
27 bind -n M-Left previous-window
~
~~
~~
~"~/.tmux.conf" 27L, 698C
0:tbsd21 1:csduty* 2:cshome 3:csschedule- 4:bsd3 5:jail 6:nasa 7:jsh
```

Configuration - bindkey

□ `~/.tmux.conf`

- `bind-key (alias: bind)`
- `C (alias: <Ctrl>)`
- `M (alias: <Alt>)`

□ `bind-key <key> <command>`

- `-T key-table (default table is prefix)`
- `-n : alias for -T root`
- `-r : repeat`

```
22 # BIND KEY
23 bind -n F8 previous-window
24 bind -n F9 next-window
25 bind -n F10 last-window
26 bind -n M-Right next-window
27 bind -n M-Left previous-window
```

Configuration - set

□ ~/.tmux.conf

- set-window-option (alias: setw)

```
1 set -g status-utf8 on
2 setw -g utf8 on
3 # GENERAL SETTING
4 bind-key r source-file ~/.tmux.conf; display-message "~/.tmux.conf is reloaded"
5 set-window-option -g automatic-rename off
6 set-option -g default-terminal "xterm"
7 set-option -g prefix C-a
8
9 # STATUSBAR STYLE
10 # main
11 set-option -g status-bg colour236
12 set-option -g status-fg colour166
13 setw -g window-status-current-format "#I:#W#F"
14 setw -g window-status-current-fg colour215
15
16 #left
17 set-option -g status-left ''
18 set-option -g status-left-length 0
19
20 #right
21 set-option -g status-right "#h [%Y-%m-%d %H:%M]"
```

Configuration - set

colour8	colour1	colour2	colour3	colour4	colour5	colour6	colour7
	colour9	colour10	colour11	colour12	colour13	colour14	colour15
	colour17	colour18	colour19	colour20	colour21	colour22	colour23
colour24	colour25	colour26	colour27	colour28	colour29	colour30	colour31
colour32	colour33	colour34	colour35	colour36	colour37	colour38	colour39
colour40	colour41	colour42	colour43	colour44	colour45	colour46	colour47
colour48	colour49	colour50	colour51	colour52	colour53	colour54	colour55
colour56	colour57	colour58	colour59	colour60	colour61	colour62	colour63
colour64	colour65	colour66	colour67	colour68	colour69	colour70	colour71
colour72	colour73	colour74	colour75	colour76	colour77	colour78	colour79
colour80	colour81	colour82	colour83	colour84	colour85	colour86	colour87
colour88	colour89	colour90	colour91	colour92	colour93	colour94	colour95
colour96	colour97	colour98	colour99	colour100	colour101	colour102	colour103
colour104	colour105	colour106	colour107	colour108	colour109	colour110	colour111
colour112	colour113	colour114	colour115	colour116	colour117	colour118	colour119
colour120	colour121	colour122	colour123	colour124	colour125	colour126	colour127
colour128	colour129	colour130	colour131	colour132	colour133	colour134	colour135
colour136	colour137	colour138	colour139	colour140	colour141	colour142	colour143
colour144	colour145	colour146	colour147	colour148	colour149	colour150	colour151
colour152	colour153	colour154	colour155	colour156	colour157	colour158	colour159
colour160	colour161	colour162	colour163	colour164	colour165	colour166	colour167
colour168	colour169	colour170	colour171	colour172	colour173	colour174	colour175
colour176	colour177	colour178	colour179	colour180	colour181	colour182	colour183
colour184	colour185	colour186	colour187	colour188	colour189	colour190	colour191
colour192	colour193	colour194	colour195	colour196	colour197	colour198	colour199
colour200	colour201	colour202	colour203	colour204	colour205	colour206	colour207
colour208	colour209	colour210	colour211	colour212	colour213	colour214	colour215
colour216	colour217	colour218	colour219	colour220	colour221	colour222	colour223
colour224	colour225	colour226	colour227	colour228	colour229	colour230	colour231
colour232	colour233	colour234	colour235	colour236	colour237	colour238	colour239
colour240	colour241	colour242	colour243	colour244	colour245	colour246	colour247
colour248	colour249	colour250	colour251	colour252	colour253	colour254	colour255

Tmux v.s. Screen

	Tmux	Screen
detach 還在	detach 消失	
畫面切割	可分割上下&左右	僅能切上下(預設)
	不同 session 不同分割	分割後每個 session 相同
session	可直接切換	需要 detach 再重新 attach
	可同時在同一個 session	一個 session 只能一個人
profile	.tmux.conf	.screenrc
	客製化狀態列	可更改處較少

Tmux - share session

□ 共同編輯

```
mickey@zjlin-TA:~ %  
mickey@zjlin-TA:~ % ping 8.8.8.8  
PING 8.8.8.8 (8.8.8.8): 56 data bytes  
64 bytes from 8.8.8.8: icmp_seq=0 ttl=58 time=3.185 ms  
64 bytes from 8.8.8.8: icmp_seq=1 ttl=58 time=3.229 ms  
64 bytes from 8.8.8.8: icmp_seq=2 ttl=58 time=3.611 ms  
64 bytes from 8.8.8.8: icmp_seq=3 ttl=58 time=3.626 ms
```

```
mickey@zjlin-TA:~ %  
mickey@zjlin-TA:~ % ping 8.8.8.8  
PING 8.8.8.8 (8.8.8.8): 56 data bytes  
64 bytes from 8.8.8.8: icmp_seq=0 ttl=58 time=3.185 ms  
64 bytes from 8.8.8.8: icmp_seq=1 ttl=58 time=3.229 ms  
64 bytes from 8.8.8.8: icmp_seq=2 ttl=58 time=3.611 ms  
64 bytes from 8.8.8.8: icmp_seq=3 ttl=58 time=3.626 ms
```

[0] 0:session1- 1:[tmux] 2:tcsh 3:ping* 4:tcs> "zjlin-TA" 09:20 27-Sep-17

[0] 0:session1- 1:[tmux] 2:tcsh 3:ping* 4:tcs> "zjlin-TA" 09:20 27-Sep-17

Q&A

