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tmux: Tools to enhance your terminal

View the Slides



https://github.com/ResearchComputing/rmacc_2025

Session Outline

- Overview of tmux
- Basics of tmux Usage
- Tools to simplify tmux
- Best practices on CU Research Computing



Ask Questions

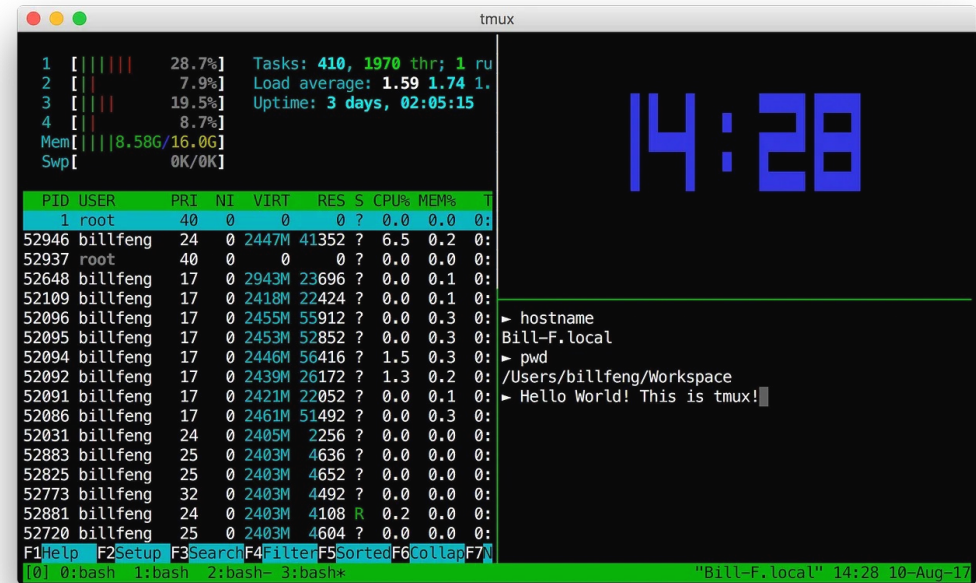


Discuss Ideas

Overview

What is *tmux*?

- *tmux* = terminal multiplexor
- Allows you to split your terminal into multiple “panes”, as well as keep terminal sessions alive



The screenshot shows a tmux terminal window with a dark background. The top left pane displays system statistics: CPU usage (28.7%), memory usage (8.58G/16.0G), and swap usage (0K/0K). The top right pane shows a digital clock in blue text: 14:28. The bottom left pane displays a list of processes with columns for PID, USER, PRI, NI, VIRT, RES, S, CPU%, MEM%, and T. The bottom right pane shows a command prompt with the output of the 'hostname' command: Bill-F.local. The status bar at the bottom shows the current session name: "Bill-F.local" 14:28 10-Aug-17.

```
1  [|||||] 28.7% Tasks: 410, 1970 thr; 1 ru
2  [|||||] 7.9% Load average: 1.59 1.74 1.
3  [|||||] 19.5% Uptime: 3 days, 02:05:15
4  [|||||] 8.7%
Mem[|||||8.58G/16.0G]
Swp[|||||0K/0K]

PID USER PRI NI VIRT RES S CPU% MEM% T
1 root 40 0 0 0 0 ? 0.0 0.0 0:
52946 billfeng 24 0 2447M 41352 ? 6.5 0.2 0:
52937 root 40 0 0 0 0 ? 0.0 0.0 0:
52648 billfeng 17 0 2943M 23696 ? 0.0 0.1 0:
52109 billfeng 17 0 2418M 22424 ? 0.0 0.1 0:
52096 billfeng 17 0 2455M 55912 ? 0.0 0.3 0:
52095 billfeng 17 0 2453M 52852 ? 0.0 0.3 0:
52094 billfeng 17 0 2446M 56416 ? 1.5 0.3 0:
52092 billfeng 17 0 2439M 26172 ? 1.3 0.2 0:
52091 billfeng 17 0 2421M 22052 ? 0.0 0.1 0:
52086 billfeng 17 0 2461M 51492 ? 0.0 0.3 0:
52031 billfeng 24 0 2405M 2256 ? 0.0 0.0 0:
52883 billfeng 25 0 2403M 4636 ? 0.0 0.0 0:
52825 billfeng 25 0 2403M 4652 ? 0.0 0.0 0:
52773 billfeng 32 0 2403M 4492 ? 0.0 0.0 0:
52881 billfeng 24 0 2403M 4108 ? 0.2 0.0 0:
52720 billfeng 25 0 2403M 4604 ? 0.0 0.0 0:
F1Help F2Setup F3Search F4Filter F5Sorted F6CollapF7V
[0] 0:bash 1:bash 2:bash 3:bash* "Bill-F.local" 14:28 10-Aug-17
```

Basics of tmux Usage

Getting Started

- From your laptop, ssh to a specific CURC login node (login-ci[3,4,5]):

```
$ ssh ralphie@xsede.org@login-ci4.rc.colorado.edu
```

- Once logged in, attach to a tmux session:

```
$ tmux (#first time you start session)
```

```
$ tmux attach (# when reconnecting to session)
```


Prefix and Command Keys



- *tmux* uses a set of **prefix** and **command** keys to:
 - *Attach and detach sessions*
 - *Split the terminal into panes*
 - *Move between terminal panes*
 - *Create and switch between new windows*
 - *Close panes and windows*
- *tmux* always uses Ctrl-B (denoted as C-b) for its prefix, followed by another character for the command
 - Even on Macs!
- Press the prefix keys at the same time, then let go, and press the command key!

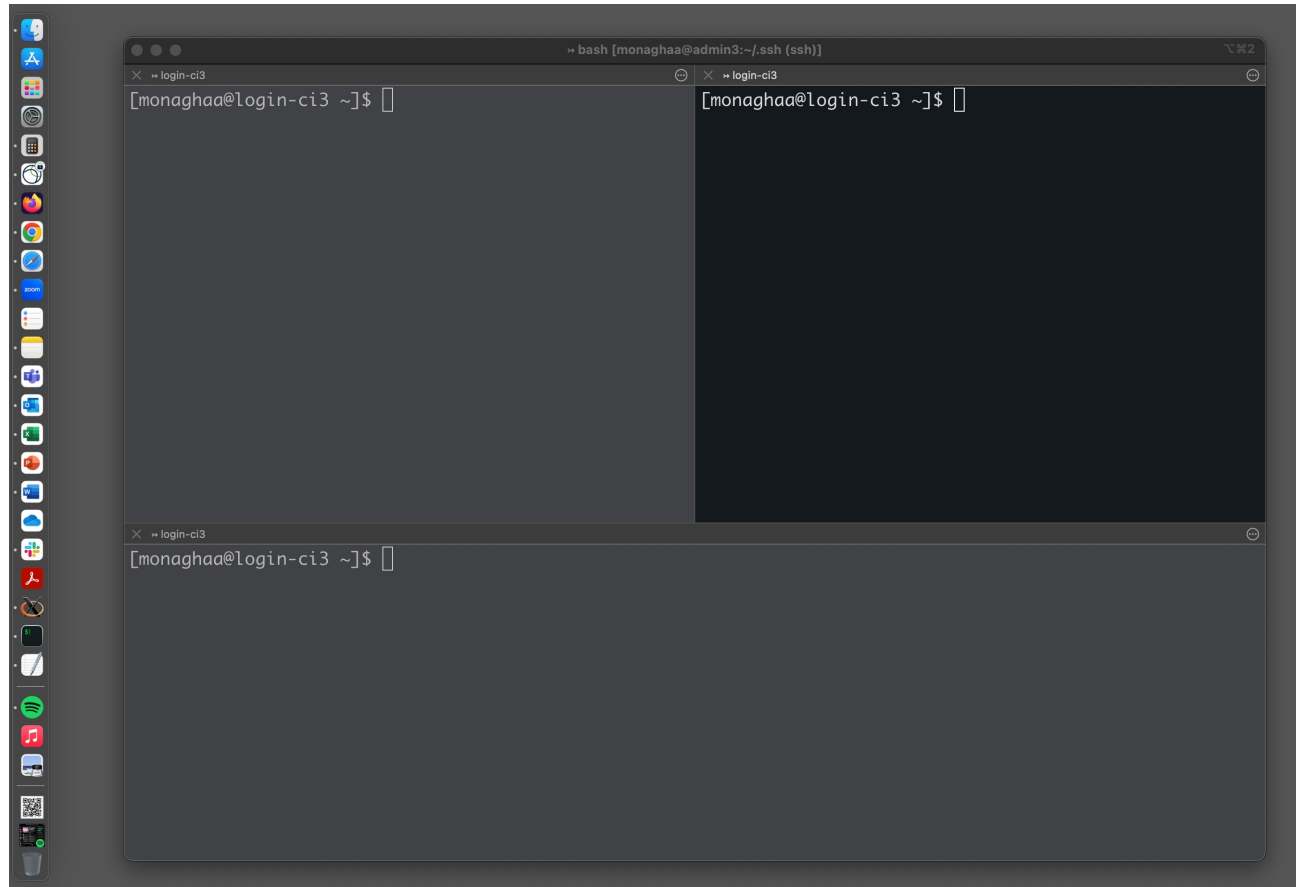
Basic Commands

- Split terminal left/right: **C-b %**
- Split terminal top/bottom: **C-b “**
- Move to a different pane: **C-b <arrow key pointing to pane>**
- Close a pane: **Ctrl-d** or type **exit**
- Create new window: **C-b c**
- Switch between windows: **C-b n** (next) or **C-b p** (previous)
- Detach from session: **C-b d**
- List sessions: **tmux ls**
- Attach to specific session: **tmux attach n**, where *n* is the session number

Demo

Tools to simplify tmux

Integration of tmux for Mac: *iTerm2*



Using *iTerm2*

- From your laptop, ssh to a specific CURC login node (login-ci[3,4,5]):

```
$ ssh ralphie@xsede.org@login-ci4.rc.colorado.edu
```

- Once logged in, attach to a tmux session with the ``-CC`` option

```
$ tmux -CC (#first time you start session)
```

```
$ tmux -CC attach (# when reconnecting to session)
```

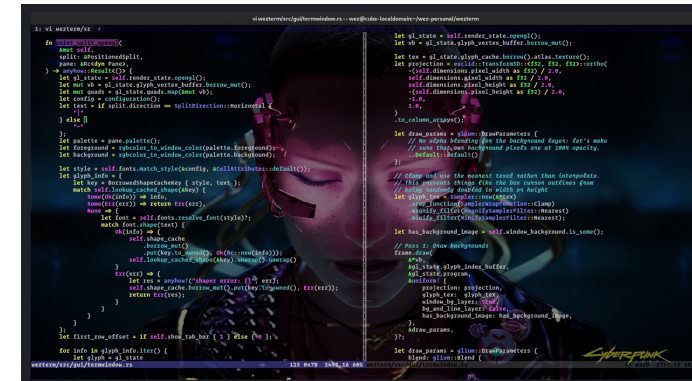
- Now use tmux in the *iTerm2* terminal with all tmux syntax abstracted!
 - Demo....

Similar tmux integration options for Windows:

- Terminal emulators that support tmux's control (``-CC``) mode, which enables abstraction of tmux syntax:

- Native option: [Windows Terminal w/ WSL](#)
 - [additional docs on -CC option](#)

- iTerm-like option: [Wezterm](#) →



Best Practices

Best Practices for using tmux on CURC

- Run on specific login nodes
 - Reason: these are rarely rebooted so sessions will persist for weeks or months
- Do not run on compute nodes
 - Reason: sessions will end when job ends
- Keep it simple – i.e., no plugins or special features
 - Reason: plugins often consume more resources than are available on login nodes
- When in doubt, ask rc-help@colorado.edu