

# i3 Window Manager

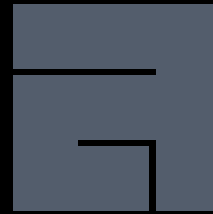
Evan Widloski | 2014-02-09  
Purdue GNU/Linux Users Group

# Tiling Window Managers

- No overlap (tiles)
- Keyboard shortcuts
- Lightweight
- Minimalistic

# Popular Tiling WMs

- awesome



- xmonad



- dwm



- wmii



- Dozens others...

```

Welcome to Arch Linux world domination Inc. <+> Sock Puppet says: Don't forget to take care of
0047 Hail_Spaceca: so is there a way to figure out what environment context xfce would be
running in and change that PATH?
0047 [+] supercommiecock (sooki@scope-024-211-143-162.nc.res.rr.com) has joined #archlinux
0047 twiggz> idiot^
0047 slava_dp> how come root's $PATH does not include /usr/local/bin in archlinux??
0048 oskude: Hail_Spacecake: i add my own paths in ~/.bashrc. but i use startx, so i
have them even for xorg apps
0048 [+] Juan_Von (Morcant@76.173.197.232) has joined #archlinux
0048 dli> Hail_Spacecake, $PATH is for shell, so, something like ~/.bashrc is better
per user
0048 [+] c0nfl|ct (tiagrei@83.240.134.68) has joined #archlinux
0048 tzervo> or even better, .bash_profile
0049 dli> slava_dp, usually, root $PATH doesn't include /usr/local/bin by default,
freebsd is an exception though
0049 twiggz> everything added by the user should be put in /usr/local...like
freebsd...most linux distros just let the application maintainers let the
shit fly wherever they tell it to...
0049 [/] sdai (-sdai@host-98-232-10-101.mobileonline.telia.com)
0049 twiggz> which is bullshit
0049 [+] dvx (-dvx@mail.genicad.cz) has joined #archlinux
00:49:38 edma2/+i 5:freenode/#archlinux/+Cmt Act: 3
#archlinux>
[0] 0:irssi* 1:zsh- 2:pdf 3:ncmcppp "lenovo" 00:49 03-Dec-10

```

```

1448 if(XQueryTree(dpy, root, &d1, &d2, &wins, &num)) {
1449     for(i = 0; i < num; i++) {
1450         if(!XGetWindowAttributes(dpy, wins[i], &wa))
1451             || wa.override_redirect || XGetTransientForHint(dpy, wins[i], &d1))
1452             continue;
1453         if(wa.map_state == IsViewable || getstate(wins[i]) == IconicState)
1454             manage(wins[i], &wa);
1455     }
1456     for(i = 0; i < num; i++) { /* now the transients */
1457         if(!XGetWindowAttributes(dpy, wins[i], &wa))
1458             continue;
1459         if(XGetTransientForHint(dpy, wins[i], &d1)
1460             && (wa.map_state == IsViewable || getstate(wins[i]) == IconicState))
1461             manage(wins[i], &wa);
1462     }
1463     if(wins)
1464         XFree(wins);
1465 }
1466

```

1457,3-17 70%

```

jellyfish.jpg          wwgfd.jpg
jfish.jpg              yellowstone.jpg
katana_1024x768.jpg    zen25.jpg
katana_1440x900.jpg    zenarch.jpg
katana_1600x1200.jpg   zen.jpg
katana_1680x1050.jpg   zen.png
katana.jpg             Zen_Wallpaper_Pack_by_xatDefect.zip
Katana_Wallpaper_by_zesly.zip
kewal.png              zombies.jpg
edma2 [4] ~/pics % cd screens
edma2 [5] ~/pics/screens % scrot -cd 5
Taking shot in 5.. 4.. 3.. 2.. 1..

```

Clock

Volume: 100%

[zc]-

00:49

12/03/2010

```

1 [ 1.4%] Tasks: 186 total, 1 running
2 [ 0.0%] Load average: 1.00 1.09 1.15
3 [ 1.3%] Uptime: 01:36:32
4 [ 0.0%]
Mem [|||||] 489/3756MB
Swp [ 0/7812MB]

```

Media library

Volume: 100%

[zc]-

2Pac	(2000) Mer De Noms	01 - The Hollow
A Perfect Circle	(2001) Acoustica	02 - Magdalena
AC/DC	(2003) Thirteenth Step	03 - Rose
Aerosmith	(2004) Emotive	04 - Judith
Aerosmith & Christina Mil		05 - Orestes
Alanis Morissette	All tracks	06 - 3 Libras
Alice In Chains		06 - 3 Libras
Alice in Chains		07 - Sleeping Beauty
Animals		08 - Thomas
Anna Malick		09 - Renholder
Arch Enemy		10 - Thinking Of You

```
--
defaultGaps :: [(Int,Int,Int,Int)]
defaultGaps = [(13,13,0,0)] -- 15 for default dzen

-- numlock handling:
--
-- The mask for the numlock key. You may need to change this on some systems.
--
-- You can find the numlock modifier by running "xmodmap" and looking for a
-- modifier with Num_Lock bound to it:
--
-- $ xmodmap | grep Num
-- mod2      Num_Lock (0x4d)
--
numlockMask :: KeyMask
numlockMask = mod2Mask

-- Border colors for unfocused and focused windows, respectively.
normalBorderColor, focusedBorderColor :: String
normalBorderColor = "#ddddd"
focusedBorderColor = "#ff0000"

-- Width of the window border in pixels
borderWidth :: Dimension
borderWidth = 1

-- The default set of Layouts:
defaultLayouts :: [Layout]
defaultLayouts = [ full
                  , tall defaultWindowsInMaster defaultDelta (1%2)
                  , wide defaultWindowsInMaster defaultDelta (1%2)
                  , spiral (1%1) ]
```

Config.hs [haskell][unix]

65/150, 1 52%

```
CPU[| 0.7%] Tasks: 52 total, 1 running
Mem[| 69/250MB] Load average: 0.07 0.04 0.03
Swp[| 0/486MB] Uptime: 01:11:51
```

RES	SHR	S	CPU%	MEM%	TIME+	Command
7304	5364	S	0.0	2.6	0:00.00	vim -c :cd %:~:tmp/xmonad/Config.hs
7304	5364	S	0.0	2.6	0:00.75	vim -c :cd %:~:tmp/xmonad/Config.hs
3424	2008	S	0.0	1.2	0:00.19	zsh
3360	2060	S	0.0	1.2	0:00.75	zsh
3112	1976	S	0.0	1.1	0:00.29	zsh
2896	1924	S	0.0	1.0	0:00.18	/usr/lib/libgconf2-4/gconfd-2 12
2648	2196	S	0.0	0.9	0:00.21	ssh -2 rt
2620	1684	S	0.0	0.9	0:00.13	zsh
2548	1684	S	0.0	0.9	0:00.11	zsh
2480	1612	S	0.0	0.9	0:00.04	xmonad --resume StackSet {size = W 6, current = Screen {wo
2128	1620	S	0.0	0.8	0:00.03	/usr/sbin/cupsd
1516	1140	S	0.0	0.5	0:00.29	/bin/zsh /home/robert/bin/dwm-status.sh
1208	944	R	0.0	0.4	0:00.42	htop
1196	936	S	0.0	0.4	0:00.00	dzen2 -m -p -l 6 -fn --profont-***-11-***-iso88
1192	932	S	0.0	0.4	0:00.00	bin/dzen2 -l 4 -p -y 1011 -fn --profont-***-11-***-
1192	932	S	0.0	0.4	0:00.29	bin/dzen2 -l 4 -p -y 1011 -fn --profont-***-11-***-
1192	936	S	0.0	0.4	0:00.00	dzen2 -p -fn --profont-***-11-***-iso8859 -y 10
1184	928	S	0.0	0.4	0:00.02	dzen2 -ta r -fn --profont-***-11-***-iso8859 -b
1184	928	S	0.0	0.4	0:00.02	dzen2 -ta r -fn --profont-***-11-***-iso8859 -b
1156	904	S	0.0	0.4	0:00.01	/bin/login --
1148	352	S	0.0	0.4	0:00.19	udev --daemon
1060	732	S	0.0	0.4	0:00.00	/usr/sbin/sshd
1052	924	S	0.0	0.4	0:00.00	/sbin/rpc.statd
1028	720	S	0.0	0.4	0:00.00	/usr/sbin/exim4 -bd -q5m
vim			0.0	0.3	0:00.00	bash
irssi			0.0	0.3	0:00.08	/sbin/syslogd
firefox			0.0	0.3	0:00.00	scrot -d 10 xmonad-dzen-gap.png
gqview			0.0	0.3	0:00.00	/usr/sbin/cron
mutt			0.0	0.3	0:00.00	/usr/sbin/cron
slrn			0.0	0.3	0:00.00	/usr/sbin/cron

```
May 28 09:51:29 deski kernel: agpgart: Putting AGP V2 device at 0000:00:00.0 into 4x mode
May 28 09:51:29 deski kernel: agpgart: Putting AGP V2 device at 0000:01:00.0 into 4x mode
May 28 09:51:29 deski kernel: [drm] Initialized card for AGP DMA.
May 28 10:05:03 deski gconfd (robert-15832): (Version 2.16.1) wird gestartet, Prozesskennung 15832, Benutzer »robert«
```

```
(robert@deski:pts/2)
(10:17:~) — scrot -d 10 xmonad-dzen-gap.png
```

```
(~)
— (Mo, Mai 28)
```

about - awesome window ma... X

awesome

homeconceptsnewsdownloadcommunitywiki

A window manager is probably one of the most used software in your day-to-day tasks, with your Web browser, mail reader and text editor. Power users and programmers have a big range of choice between several tools for these day-to-day tasks. Some are heavily extensible and configurable.

**awesome** tries to complete these tools with what we miss: an extensible, highly configurable window manager.

To achieve this goal, **awesome** has been designed as a framework window manager. It's extremely fast, small, dynamic and heavily extensible using the [Lua](#) programming language.

We provide an easily usable and very-well documented API to configure and define the behaviour of your window manager.

Did you ever imagine press one key and see all your windows arranged automagically?

Did you ever imagine type a window's name and get it back in front of you?

Did you ever imagine *ssh* to a computer and see the load average of this one to be graphed directly in the titlebar of your terminal emulator?

**awesome** allow you to do that, and more, as long as you can express it in a programming language.

### Features and non-features

- × Very stable;
- × Complete and very well documented source code and API;
- × No mouse needed: everything can be performed with keyboard;
- × Real multihead support (XRandR, Xinerama or Zaphod mode);
- × Implement many [Freedesktop](#) standards: [EWMH](#), [XDG Base Directory](#), [XEmbed](#), [System Tray](#);
- × Some real transparency support (using Composite extension and xcompmgr);
- × Doesn't distinguish between layers: there is no floating or tiled layer;
- × Whether or not the clients of currently selected tag(s) are in tiled layout, you can rearrange them on the fly. Popup and fixed-size windows are always floating, however;
- × Layout handling: can automatically manage your windows placement according to the chosen policy for each tag;
- × Use tags instead of workspaces: allow to place clients on several tags, and display several tags at the same time;
- × [D-Bus](#) support;
- × And more.

This gonna be LEGEN... wait for it... DARY!

34 Developers

Copyleft 2007-2008, awesome project

Last edited Wed Jul 9 19:44:40 2008

<http://awesome.naquadah.org/newsite/> [ + ]

[ 2/2 ] Top 2002:d455:9aae::1 +1

Mutt with 616 messages1215630123 time\_t

18 We provide an easily usable and very-well documented API to configure and

19 define the behaviour of your window manager.

20

21 Did you ever imagine press one key and see all your windows arranged

22 automagically?

23

24 Did you ever imagine type a window's name and get it back in front of you?

25

26 Did you ever imagine *ssh* to a computer and see the load average of this one

27 to be graphed directly in the titlebar of your terminal emulator?

28

29 **awesome** allow you to do that, and more, as long as you can express it in a

30 programming language.

31

32 # Features and non-features

33 \* Very stable, fast, small and simple;

34 \* Complete and very well documented source code and API;

35 \* No mouse needed: everything can be performed with keyboard;

36 \* Real multihead support (XRandR, Xinerama or Zaphod mode);

37 \* Implement many [Freedesktop](#) standards: [EWMH](#) (<http://standards.freedesktop.org/wm-spec/wm-spec-latest.html>),

38 [XDG Base Directory](#) (<http://standards.freedesktop.org/basedir-spec/basedir-spec-latest.html>),

39 [XEmbed](#) (<http://standards.freedesktop.org/xembed-spec/xembed-spec-latest.html>),

40 [System Tray](#) (<http://standards.freedesktop.org/systemtray-spec/systemtray-spec-latest.html>);

41

42 \* Some real transparency support (using Composite extension and xcompmgr);

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49 \* Use tags instead of workspaces: allow to place clients on several tags, and

50 display several tags at the same time;

index.ndwn [ikiwiki] 33,37 80%

491 sF Jul 01 To awesome@naqu (0.8K) ↳Re: [PATCH] Add a tags target, cmake alrea

492 r Jul 02 Marco Candrian (1.6K) [PATCH] [widgets/progressbar] add fg\_off to s

493 S Jul 02 Marco Candrian (1.4K) ↳Re: [PATCH] [widgets/progressbar] add fg\_o

494 rs Jul 02 Marco Candrian (1.0K) ↳

495 sF Jul 02 To awesome@naqu (1.0K) ↳

---Mutt: =list-awesome/ [Msgs:516 19M]---(threads/date)----- (95%)---

From: calmar <mac@calmar.ws>

To: awesome@naquadah.org

Subject: Re: [PATCH] [widgets/progressbar] add fg\_off to set + fix copy/paste typo

Date: Wed, 2 Jul 2008 02:54:42 +0200

Mail-Followup-To: calmar <mac@calmar.ws>, awesome@naquadah.org

User-Agent: Mutt/1.5.17 (2008-04-09)

[-- PGP output follows (current time: Wed Jul 9 21:01:38 2008) --]

gpg: Signature made Wed Jul 2 02:54:42 2008 CEST using DSA key ID 59D90F4D

gpg: Good signature from "Marco Candrian <mac@calmar.ws>"

gpg: WARNING: This key is not certified with a trusted signature!

gpg: There is no indication that the signature belongs to the owner.

Primary key fingerprint: 5514 F43C A0CC 584C 956A A8F2 F6B4 834C 59D9 0F4D

[-- End of PGP output --]

[-- The following data is signed --]

On Wed, Jul 02, 2008 at 02:48:35AM +0200, marco candrian wrote:

Hi all,

there is another issue with the progressbar (probably also with the graph).

area\_t is used as something like a vector - for the color-gradient.

Therefore width and height can have negativ values, and therefore should not but unsigned, what area\_t is so.

So, either something different to area\_t as a 'vector' has to be

- S - 493/516: Marco Candrian Re: [PATCH] [widgets/progressbar] add -- (63%)

PGP signature successfully verified.

## Fact: Tiling WMs are better than Stacking WMs

- Great increase in productivity
- Highly customizable
- Utilities from other WMs can still be used





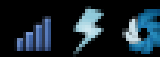
## Characteristics of i3wm

- Direct control of window tree
- Settings stored in easily-read text file
- vim-like window navigation and resizing
- Floating window support (good for popups)

# i3bar

- Area to display system statistics
- User configurable (accepts JSON input)
- Uses 'i3status' by default
- Supports click events

.07GB | 0KB | 0KB | 22:44PM | 95% | 42.0C



Check out my config and find  
example i3bar scripts @


<http://github.com/Evidlo/i3config/>

# i3 Window Manager

Evan Widloski | 2014-02-09  
Purdue GNU/Linux Users Group

how many have used tiling wm?

how many know what a tiling wm is?



- No overlap (tiles)

- Keyboard shortcuts

- Lightweight

- Minimalistic

a few key characteristics of a tiling wm



common tiling window managers

big list of others on wikipedia if you want to try them

```

ot^
come root's $PATH does not include /usr/local/bin in archlinux??
l_Spacecake: i add my own paths in ~/.bashrc. but i use startx, so i
e them even for xorg apps
cant076.173.197.232) has joined #archlinux
l_Spacecake, $PATH is for shell, so, something like ~/.bashrc is better
user
grei083.240.134.68) has joined #archlinux
even better, .bash_profile
va_dp, usually, root $PATH doesn't include /usr/local/bin by default,
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ebd...most linux distros just let the application maintainers let the
t fly wherever they tell it to...
st-98-232-10-101.mobileonline.telis.com)
ch is bullshit
.genicad.cz) has joined #archlinux
reenode/#archlinux/+Cont Act: 3

df 3:ncmcppp "lenovo" 00:49 03-Dec-10

ree(dpy, root, &d1, &d2, &wins, &num)) {
r(i = 0; i < num; i++) {
    if(!XGetWindowAttributes(dpy, wins[i], &wa)
    || wa.override_redirect || XGetTransientForHint(dpy, wins[i], &d1))
        continue;
    if(wa.map_state == IsViewable || getstate(wins[i]) == IconicState)
        manage(wins[i], &wa);
r(i = 0; i < num; i++) { /* now the transients */

```

dwm, written in C

~20KB

goal of creator: <2000

no configuration file, edit headers as configuration

```
--
defaultGaps :: [(Int,Int,Int,Int)]
defaultGaps = [(13,13,0,0)] -- 15 for default dzen

-- numlock handling:
--
-- The mask for the numlock key. You may need to change this on some systems.
--
-- You can find the numlock modifier by running "xmodmap" and looking for a
-- modifier with Num_Lock bound to it:
--
-- $ xmodmap | grep Num
-- mod2      Num_Lock (0x4d)
--
numlockMask :: KeyMask
numlockMask = mod2Mask

-- Border colors for unfocused and focused windows, respectively.
normalBorderColor, focusedBorderColor :: String
normalBorderColor = "#ddddd"
focusedBorderColor = "#ff0000"

-- Width of the window border in pixels
borderWidth :: Dimension
borderWidth = 1

-- The default set of Layouts:
defaultLayouts :: [Layout]
defaultLayouts = [ full
                  , tall defaultWindowsInMaster defaultDelta (1/2)
                  , wide defaultWindowsInMaster defaultDelta (1/2)
                  , spiral (1/3) ]

Config.hs [haskell][unix] 65/150, 1.52%

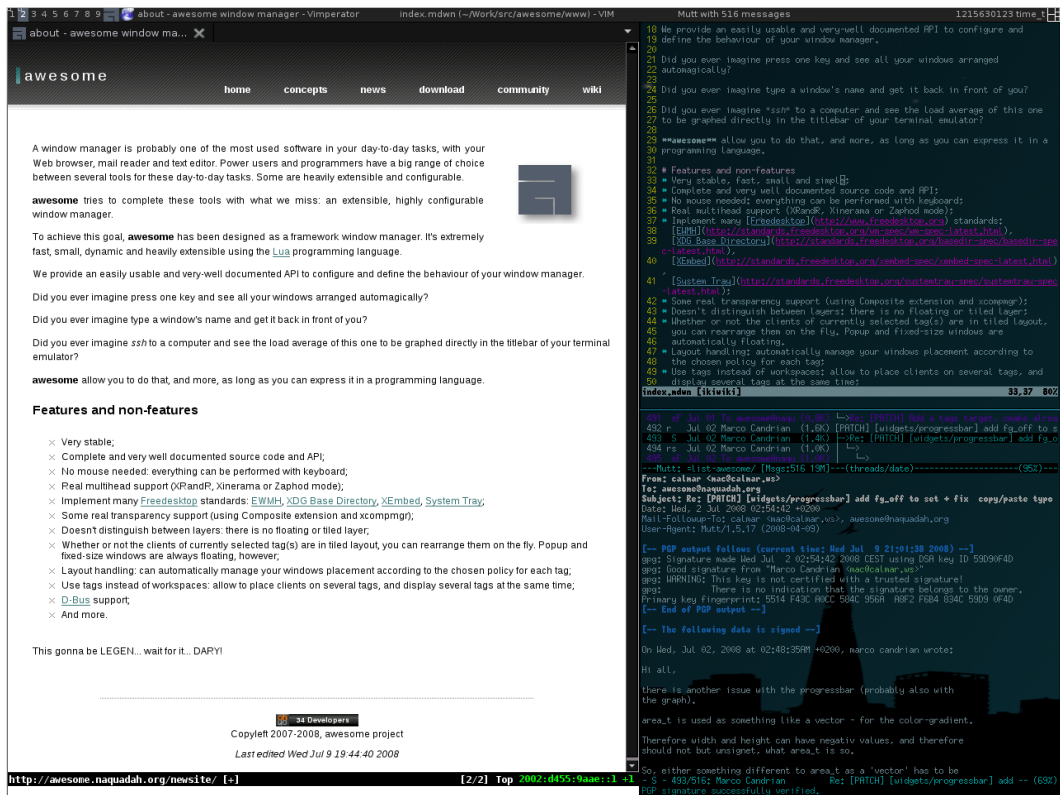
CPU: 0.7% Tasks: 52 total, 1 running
Mem: 69/25MB Load average: 0.07 0.04 0.03
Swap: 0/486MB Uptime: 01:11:51

RES SHR S CPU% MEM% TIME Command
304 5364 S 0.0 2.6 0:00.00 vim -c :cd %ip:h tmp/xmonad/Config.hs
704 5364 S 0.0 2.6 0:00.75 vim -c :cd %ip:h tmp/xmonad/Config.hs
424 2000 S 0.0 1.2 0:00.15 zsh
360 2060 S 0.0 1.2 0:00.75 zsh
1112 1976 S 0.0 1.1 0:00.29 zsh
2896 1924 S 0.0 1.0 0:00.18 /usr/lib/libgconf2-4/gconfd-2.12
2648 2196 S 0.0 0.9 0:00.21 ssh -2 rt
2620 1684 S 0.0 0.9 0:00.15 zsh
2548 1684 S 0.0 0.9 0:00.11 zsh
2480 1612 S 0.0 0.9 0:00.04 xmonad --resume StackSet (size = W 6, current = Screen {vo
2128 1620 S 0.0 0.8 0:00.03 /usr/sbin/cupsd
1316 1140 S 0.0 0.5 0:00.29 /bin/zsh /home/robert/bin/dwm-status.sh
1208 944 R 0.0 0.4 0:00.42 http
1196 936 S 0.0 0.4 0:00.00 dzen2 -m -p -l 6 -fn +*profont+*+*+*+11+*+*+*+iso88
1192 932 S 0.0 0.4 0:00.00 bin/dzen2 -l 4 -p -y 1011 -fn +*profont+*+*+*+11+*+*+*+
1192 932 S 0.0 0.4 0:00.28 bin/dzen2 -l 4 -p -y 1011 -fn +*profont+*+*+*+11+*+*+*+
1192 936 S 0.0 0.4 0:00.00 dzen2 -p -fn +*profont+*+*+*+11+*+*+*+iso8859 -y 10
1184 928 S 0.0 0.4 0:00.02 dzen2 -ts r -fn +*profont+*+*+*+11+*+*+*+iso8859 -b
1184 928 S 0.0 0.4 0:00.02 dzen2 -ts r -fn +*profont+*+*+*+11+*+*+*+iso8859 -b
1156 904 S 0.0 0.4 0:00.01 /bin/login --
1148 352 S 0.0 0.4 0:00.19 udevd --daemon
1060 732 S 0.0 0.4 0:00.00 /usr/sbin/sshd
1052 924 S 0.0 0.4 0:00.00 /usr/sbin/rpc.statd
1028 720 S 0.0 0.4 0:00.00 /usr/sbin/exim4 -bd -qsm
vim 0.0 0.3 0:00.08 bash
irssi 0.0 0.3 0:00.08 /sbin/syslogd
firefox 0.0 0.3 0:00.00 scrot -d 10 xmonad-dzen-gap.png May 28 09:25:120 desk1 kernel: agpgart: Putting AGP V2 device at 0000:00:00:0 into 4k mode
cromix 0.0 0.3 0:00.00 /usr/sbin/cron May 28 09:25:120 desk1 kernel: agpgart: Putting AGP V2 device at 0000:00:00:0 into 4k mode
mult p=Search invert=tree -SortBy=Nice -N Nice -gk May 28 09:25:120 desk1 kernel: [drm] Initialized card for AGP DMA.
vim May 28 18:05:103 desk1 gconfd (robert:15932): (Version 2.16.1) wird gestartet, Prozesskennung 15932, Benutzer robert.
```

xmonad - written in haskell

interesting fact: windows 1.0 had a tiling window manager





awesome -

lots of tiling wm's are similar

Great increase in productivity

Highly customizable

Utilities from other WMs can still be used



started in 2009, written in c, good documentation

differences:

- uses text configuration file

- split and move windows any way you want

#####

- open new workspace, create windows

- keyboard navigation much faster than swapping between mouse and keyboard

- vim like navigation, resizing

- move windows around/different workspace

- floating windows – calculator

- can still use xfce utilities

- config – change modkeys, set shortcuts, set colors

Direct control of window tree

Settings stored in easily-read text file

vim-like window navigation and resizing

Floating window support (good for popups)

Area to display system statistics

User configurable (accepts JSON input)

Uses 'i3status' by default

Supports click events

.07GB | 0KB | 0KB | 22:44PM | 95% | 42.0C



Check out my config and find  
example i3bar scripts @

<http://github.com/Evidlo/i3config/>