

USING

TILING

WINDOW

MANAGERS

## WINDOW MANAGER

- draws windows with decoration (if any)
- buttons, arrows, ...
- manages windows (!!): opening, closing, resizing, moving

## DESKTOP ENVIRONMENT

- needs a window manager
- adds visual features : panels, status bars, system menus, ....
- adds operational features : starters, drag&drop, (usually) utility applications, ...

## TILING WINDOW MANAGER

- creates rectangular tiles for activities, which fill the screen; typically, minimal decoration
- cf. overlapped, dynamic, stacked, tabbed, popup, ....

# A STARTING POINT - wmii

2005 - 2010 .....

- \* “tiling manager for X11”
- \* technically advanced
- \* intricate
  
- \* latest version includes Xinerama, own menu program

```
zedwards@shantideva: ~
Ign http://www.openprinting.org lsb3.2 Release.gpg
Ign http://www.openprinting.org lsb3.2/postscript-ricoh Translation-en-US
Hit http://fr.archive.ubuntu.com intrepid/universe Sources
Hit http://fr.archive.ubuntu.com intrepid/multiverse Packages
Hit http://fr.archive.ubuntu.com intrepid/multiverse Sources
Get:3 http://fr.archive.ubuntu.com intrepid-updates/main Packages [332kB]
Get:4 http://www.openprinting.org lsb3.2 Release [30,2kB]
Ign http://www.openprinting.org lsb3.2/postscript-ricoh Packages
Hit http://www.openprinting.org lsb3.2/postscript-ricoh Packages
Get:5 http://fr.archive.ubuntu.com intrepid-updates/restricted Packages [8436B]
Get:6 http://fr.archive.ubuntu.com intrepid-updates/main Sources [106kB]
Get:7 http://fr.archive.ubuntu.com intrepid-updates/restricted Sources [2474B]
Get:8 http://fr.archive.ubuntu.com intrepid-updates/universe Packages [105kB]
Get:9 http://fr.archive.ubuntu.com intrepid-updates/universe Sources [24,1kB]
Get:10 http://fr.archive.ubuntu.com intrepid-updates/multiverse Packages [10,9kB]
Get:11 http://fr.archive.ubuntu.com intrepid-updates/multiverse Sources [4118B]
Fetched 645kB in 11s (56,6kB/s)
Reading package lists... Done
zedwards@shantideva: $
```

```
mc - ~
Left File Command Options Right
~/Documents
Name Size MTime Name Size MTime
*DCL Staff Ka'al-2009.TXT 111488 May 13 17:09 .xsession 157 Apr 18 22:28
*DCL Staff Ka'al-2009.lyx 111488 May 13 17:24 .xsession-errors 15514 May 14 00:09
*DCL Staff Ka'l-2009.lyx 111488 May 13 17:24 2009-04-20-2*0_scrnt.png 186859 Apr 20 20:00
*DCL Staff Ka'al-2009.tex 77865 Apr 12 15:18 2009-04-20-2*0_scrnt.png 149273 Apr 20 20:14
*DCL Staff Ka'al-2009.txt 87363 Apr 12 16:50 DCL Muster 2009.xls 8704 May 12 15:32
DCL Staff Re"#13E5EC.doc 40960 Nov 18 11:04 DCL_Staff_Ka'al-2009.pdf 379301 May 13 17:10
DCL Staff Re"ns 2008.doc 44544 Nov 20 10:41 DCL_Staff_Ka"009edit.doc 1267200 Apr 22 18:53
DCL Staff Re"le 2008.doc 58880 Nov 19 13:20 DCL_Staff_Ka"LyX,latex" 110047 Apr 21 11:16
DCL Staff Re"e 2008.docx 98089 Nov 19 13:19 First-Aid_kit.doc 107008 Apr 21 16:09
DCL Staff Retreat Schedule 2008.doc 2009-04-20-200023_1280x800_scrnt.png
Hint: You can do anonymous FTP with mc by typing 'cd /#ftp:~machine.edu'
zedwards@shantideva:~$
```

```
zedwards@shantideva: ~
Actions Undo Package Resolver Search Options Views Help
C-T: Menu ?: Help q: Quit u: Update g: Download/Install/Remove Pkgs
aptitude 0.4.11.3
--- Upgradable Packages (6)
--- Installed Packages (1246)
--- Not Installed Packages (24936)
--- Obsolete and Locally Created Packages (6)
--- Virtual Packages (2546)
--- Tasks (10002)
A newer version of these packages is available.
This group contains 6 packages.
```

```
TODD.txt (~) - VIM
fileshare windows - install omnis
muster
email bob re dues 170
Security light in Suite
Banner Stand
Measure Shrine A for sound analysis
Finish First-aid checklist
FU - H-W kasung tents rtn
Cover tori platform
Cell phone inventory
staff photos
Kasung phone number VM
Special needs participant file
FU - Clem; Door/lock barn
orig artwork inventory
DK program manual
Kani tree budget
Saturday online presentation and squad m>
Theyry undermesh
owen - community space marikit and jose
email medicine kasung
mess kasung bbq
add KOD during talk to manual
1.1 All
```

```
zedwards@shantideva: ~
WMII(1) WMII(1)
NAME
wmii-VERSION - lightweight tabbed and tiled X11 window manager
SYNOPSIS
wmii [-a<address>] [-c<wmiiirc>]
wmii -v
DESCRIPTION
OVERVIEW
wmii is a dynamic window manager for X11. In contrast to static window management the user rarely has to think about how to organize windows, no matter what he is doing or how many applications are used at the same time. The window manager
Manual page wmii(1) line 1
```

```
zedwards@shantideva: ~
*** -
*** - Our 2009/2010 fundraiser will be
+starting soon, more information
*** - will be available here and on the
+website! If you wish to donate
*** - you can help out over at
+http://freenode.net/pdpc_donations.shtm
+1
*** -
*** - Thank you for using freenode!
*** -
*** #apple ##apple Forwarding to another channel
*** zedwards (n=zedwards@81.80.91.213) has joined channel ##apple
*** Topic for ##apple: Welcome | Everything Apple; OS X, iPods,
+iPhones & more | Ask your question, please be patient! | Latest:
+10,5,6
*** ##apple Branes 1241958338
*** ##apple 1164523365
[1] 00:15 zedwards on ##apple (+cnt) * type /help for help
```

```
zedwards@shantideva: ~
zedwards@shantideva: $
```

```

tony@deathstar:~$ curl -s -X GET http://api.identi.ca/users/124691-48-20090120031206.jpeg?profile_image_url=http://www.baldwinsoftware.com/ur/
<profile_sidebar_border_color=#000000/>profile_sidebar_border_color</profile_sidebar_border_color>
<friends_count=34/>friends_count</friends_count>
<created_at=Thu Jan 20 01:30:24 +0000 2009/>created_at</created_at>
<favorites_count=1/>favorites_count</favorites_count>
<utc_offset=0/>utc_offset</utc_offset>
<time_zone=ET/>time_zone</time_zone>
<profile_background_image_url=/>profile_background_image_url</profile_background_image_url>
<profile_background_tile=true/>profile_background_tile</profile_background_tile>
<statuses_count=209/>statuses_count</statuses_count>
<following=true/>following</following>
<notifications=true/>notifications</notifications>
</users>
</STATUS>
done
tony@deathstar:~$ idcurl
Enter your identi.ca update text:
http://goo.gl/207M JULIETA VENEGAS - OTRA COSA - RELEASED TODAY / LANZADO HOY (adorno ni Julieta :D)
<?xml version="1.0" encoding="UTF-8"?>
<status>
<text=http://goo.gl/207M JULIETA VENEGAS - OTRA COSA - RELEASED TODAY / LANZADO HOY (adorno ni Julieta :D)~/text>
<truncated=false/>truncated</truncated>
<created_at=Tue Mar 16 16:05:56 +0000 2010/>created_at</created_at>
<in_reply_to_status_id=4/>in_reply_to_status_id</in_reply_to_status_id>
<source=api/>source</source>
<id=34963284/>id</id>
<in_reply_to_user_id=4/>in_reply_to_user_id</in_reply_to_user_id>
<in_reply_to_screen_name=4/>in_reply_to_screen_name</in_reply_to_screen_name>
<geo xmlns:georss="http://www.georss.org/georss">
<georss:point=41.3081527 -72.9281579/>georss:point</georss:point>
</geo>
<favorited=false/>favorited</favorited>
<attachments type="array">
<enclosure url="http://s3.amazonaws.com/images/T/6509hw7P6L.jpg" mimeType="image/jpeg" size="">enclosure</enclosure>
</attachments>
<id=124691/>id</id>
<name=anthony baldwin/>name</name>
<screen_name=tonybaldwin/>screen_name</screen_name>
<location>New Haven, CT, USA/>location</location>
<description>translator, interpreter (EN, PT, ES, FR), gnu/linux user, wannabe hacker (tel, perl, python, bash)&#62;
http://tonytranslator.livejournal.com/>description</description>
<profile_image_url=http://avatar.identi.ca/124691-48-20090120031206.jpeg/>profile_image_url</profile_image_url>
<url=http://www.baldwinsoftware.com/>url</url>
<protected=false/>protected</protected>
<followers_count=22/>followers_count</followers_count>
<profile_background_color=#286728/>profile_background_color</profile_background_color>
<profile_text_color=#19C83B/>profile_text_color</profile_text_color>
<profile_link_color=#009944/>profile_link_color</profile_link_color>
<profile_sidebar_fill_color=#006230/>profile_sidebar_fill_color</profile_sidebar_fill_color>
<profile_sidebar_border_color=#000000/>profile_sidebar_border_color</profile_sidebar_border_color>
<friends_count=34/>friends_count</friends_count>
<created_at=Thu Jan 20 01:30:24 +0000 2009/>created_at</created_at>
<favorites_count=1/>favorites_count</favorites_count>
<utc_offset=0/>utc_offset</utc_offset>
<time_zone=ET/>time_zone</time_zone>
<profile_background_image_url=/>profile_background_image_url</profile_background_image_url>
<profile_background_tile=true/>profile_background_tile</profile_background_tile>
<statuses_count=209/>statuses_count</statuses_count>
<following=true/>following</following>
<notifications=true/>notifications</notifications>
</users>
</STATUS>
done
tony@deathstar:~$ setkbmap us Intl
bash: setkbmap: command not found
tony@deathstar:~$ setkbmap us Intl
tony@deathstar:~$ screenshot2010.03.16a.jpg

```

**JULIETA VENEGAS & MTV UNPLUGGED**

1. Julieta Venegas - Otra Cosa (Otra Cosa)

Track	Artist	Album	Duration
1	Julieta Venegas	Almas Platinas	02:30 (MP3)
2	Julieta Venegas	Bien a Mal	01:52 (MP3)
3	Julieta Venegas	Despedida	01:50 (MP3)
4	Julieta Venegas	Deja el Mí	01:20 (MP3)
5	Julieta Venegas	Revolución	01:50 (MP3)
6	Julieta Venegas	Otra Cosa (Otra Cosa)	02:30 (MP3)
7	Julieta Venegas	Original	01:50 (MP3)
8	Julieta Venegas	Ya Cambiaré	01:50 (MP3)
9	Julieta Venegas	Solo (Solo)	01:50 (MP3)
10	Julieta Venegas	Si Tu No Estás	01:50 (MP3)
11	Julieta Venegas	de Lugar	01:50 (MP3)
12	Julieta Venegas	Estre	01:50 (MP3)

PGM 90A 90A 90A

[NEXT]

```

+ fs.c
}

Fileid *f = get_file0;
f->tab = dirtab[FsRoot][0];
f->tab.name = estrdup("/");
f->content.ref = nil; /* shut up valgrind */
r->fid->aux = f;
r->fid->qid.type = f->tab.qtype;
r->fid->qid.path = QID(f->tab.type, 0);
r->ofcall.qid = r->fid->qid;
respond(r, nil);
}

void
fs_walk(P9Req *r) {
int i;

f = r->fid->aux;
clone_files(f);
for(i=0; i < r->ifcall.nwname; i++) {
    if(!strcmp(r->ifcall.wname[i], ".") || !strcmp(r->ifcall.wname[i], ".."))
        continue;
    if(f->next) {
        nf=f;
        f=f->next;
        free_file(nf);
    }
    else {
        nf = lookup_file(f, r->ifcall.wname[i]);
        if(nf)
            break;
        assert(!nf->next);
        if(strcmp(r->ifcall.wname[i], ".") || strcmp(r->ifcall.wname[i], ".."))
            nf->next = f;
            f = nf;
    }
    r->ofcall.wqid[i].type = f->tab.qtype;
    r->ofcall.wqid[i].path = QID(f->tab.type, f->id);
}
/* There should be a way to do this on freedid0 */
if(i < r->ifcall.nwname) {
    while((nf = f->next))
        free_file(nf);
}
respond(r, Enofile);
return;
}
/* Remove refs for r->fid if no new fid */
if(r->ifcall.fid == r->ifcall.newfid) {
    nf = r->fid->aux;
    r->fid->aux = f;
    while((f = nf)) {
        nf = nf->next;
        free_file(f);
    }
}
else
    r->newfid->aux = f;
}

```

```

/usr/local/home/kris/wml1/kris

```

repl. The clipping region may be modified dynamically using replclipr (q.v.).

chan The pixel channel format descriptor, as described in image(7). The value should not be modified after the image is created.

depth The number of bits per pixel in the picture: it is identically chantodepth(chan) (see graphics(3)) and is provided as a convenience. The value should not be modified after the image is created.

repl A boolean value specifying whether the image is tiled to cover the plane when used as a source for a drawing operation. If repl is zero, operations are restricted to the intersection of r and clipr. If repl is set, r defines the tile to be replicated and clipr defines the portion of the plane covered by the tiling, in other words, r is replicated to cover clipr; in such cases r and clipr are independent.

For example, a replicated image with r set to ((0, 0), (1, 1)) and clipr set to ((0, 0), (100, 100)), with the single pixel of r set to blue, behaves identically to an image with r and clipr both set to ((0, 0), (100, 100)) and all pixels set to blue. However, the first image requires far less memory. The replication flag may be modified dynamically using replclipr (q.v.).

Most of the drawing functions come in two forms: a basic

Page 4 Plan 9 (printed 2/28/07)

DRAW(3) DRAW(3)

```

/usr/local/home/kris/lastfmproxy-1.1/kris

```

Ready.  
start  
Station: Global Tag Radio: 20th Century Classical  
Artist: Benjamin Britten <<http://www.last.fm/music/Benjamin+Britte+n>>  
Album: War Requiem/Sinfonia Da Requiem/Ballad Of Heroes  
Track: War Requiem Op.66:II. Dies Irae  
Duration: 27:15  
Ends: approx Wed Feb 28 01:44:17 EST 2007



stats

kris

l

c

e

c 6620

n

0,10 0,41 0,48 | Wed Feb 28 01:20:42 EST 2007

## SIMILAR WINDOW MANAGERS

- dwm
- awesome
- ion
- ratpoison
- stumpwm (successor to ratpoison)
- rio (wm for Plan9 from Bell Labs)
- Xmonad
- i3
- sunaku

# wattOS

- emphasis on non-use of unnecessary resources
- mainstream release is LXDE over Ubuntu LTS
- Ubuntu means Ubuntu core, not “add LXDE and remove Unity” ; different to Lubuntu
- traditional application mix without heavyweights
  
- introduced an even lighter-weight distro, microwatt
- only lightweight applications (but access to other in repos)
- i3wm instead of LXDE
  
- mixed reception .... there is an upfront shock
- high appeal as a minimalist base for building only what is wanted



# IN SEARCH OF INFORMATION

\* [i3wm.org](http://i3wm.org)

(screenshots)

- screencast (basic features)
- Google TechTalk (1hr)
- screencasts on installing, using and configuring i3

\* [planetwatt.com](http://planetwatt.com)

R9 microwatt

(wiki... microwatt)

- keyboard reference

(forums...wattosR9...R9 released)

- link to YouTube video