

MDM

“Multiseat Display Manager”

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Explanation

*I've written this presentation in English
because I want to add it to the
repository documentation =)*

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Assumptions

- *I assume you know how multiseat works =)*
 - or should work
- *If you don't, read this:*
 - wiki.c3sl.ufpr.br/multiseat
- *If you speak Portuguese:*
 - www.inf.ufpr.br/prz05/presentations/multiterminal.pdf
- *If you don't know what's PRD, mt2, sibi, DINF, UFPR or any other words I used here, no problem, just keep reading*

The problem

- *Make a generic package for all multiseat technologies*
 - GDM, KDM, XDM, XDMCP, “sibi”, “Sistema de provas UFPR”
 - Xephyr, Xnest, Multiple X Servers, Xat, VNC
- *Here, we use XDMCP and Xephyr, at home people might want to use GDM and Xephyr, soon we'll use multiple X servers*
- *What can we do?*

MDM

- *Multiseat Display Manager is a “wrapper” on the actual display manager*
- *It detects hardware, associates seats with devices and then calls the real display manager*

Modes

- *The “mode” is a bash script, which is included and do the “display-manager-dependent” part*
- *Same idea as a “driver” or “plugin”*
- *Add file in /usr/share/mdm/modes/*
- *Change “MULTISEAT_MODE” variable in mdm.conf*
- *Do any other configuration changes needed (like changing the XDMCP server address)*

The scripts

mdm -> mdm-bin -> mdm-start-seat

- *mdm*
 - is the /etc/init.d/ guy
- *mdm-bin*
 - calls create-xorg-conf
 - finds out how many seats we have
 - starts any needed underneath X server
 - calls multiple instances of mdm-start-seat

The scripts

- *mdm-start-seat*
 - asks user to press keys and buttons associated with the seat
 - tells the “mode” to start the X server
 - reconfigures devices after the X server dies

Everyone uses:

- *mdm-common*
 - useful functions
 - loads mdm.conf
 - loads multiseat-mode
- *mdm.conf*
 - the config file
- *discover-devices*
 - finds video cards and input devices
 - I'm really NOT happy with its implementation

Other guys

- *create-xorg-conf*
 - creates xorg.conf!
- *read-devices*
 - used to detect key or button press
- *write-message*
 - our user interface!
 - writes things like “Press F1” on the screen

The mode

- *Is a “sourced” bash script*
- *Has to define these functions:*
 - display_manager_init
 - display_manager_start_monoseat
 - display_manager_start_underneath_xserver
 - display_manager_start_seat
 - display_manager_stop

Current modes:

- *xephyr-xdmcp*:
 - runs X on a (possibly) remote XDMCP server
 - doesn't use *DM
 - should be used in DINF and PRD
- *xephyr-gdm*:
 - runs stuff locally, using GDM
 - uses “gdmdynamic” to start servers
 - small and simple code =)

The packages

- *mdm*:
 - has the main scripts and the “default modes”
 - “default modes” are modes which do not depend on anything that the mdm package already depends
 - currently, only “xephyr-xdmcp”
 - we could write one for “sibi” and one for the “sistema de provas UFPR”
- *mdm-`mode-name`*
 - depends on something that mdm doesn't (like GDM)
 - the only one I've written is “xephyr-gdm”

The dependencies

- *libx11-6*:
 - we need a modified version of libx11-6
 - so Xephyr won't keep randomly crashing
 - no one actually said “no” to the patch
 - should we try to ask this again?
- lists.freedesktop.org/archives/xorg/2006-August/017402.html
- bugs.freedesktop.org/show_bug.cgi?id=6820

The dependencies

- *xserver-xephyr*:
 - for the newest Xephyr, only “-geometry” is required
 - for older Xephyrs (Debian Etch), another patch is required (still unsupported by mdm)
 - the maintainer has rejected the patch because he fears that it will “pollute Xephyr's intended use case and users.”
 - X guys suggested us to fork Xephyr
 - we could try to use the “-parent” option to make a very-ugly workaround...

The dependencies

- *xserver-xephyr*:
 - lists.freedesktop.org/archives/xorg/2008-March/033690.html
 - bugs.freedesktop.org/show_bug.cgi?id=12221

The repository

paulo@mt2:~/mdm\$ ls -F

<i>AUTHORS</i>	<i>COPYING</i>	<i>doc/</i>
<i>MAINTAINERS</i>	<i>README</i>	<i>compiled/</i>
<i>dependencies/</i>	<i>extra-modes/</i>	<i>mdm/</i>
<i>TODO</i>		

The repository

- *dependencies: libx11-6 and xserver-xephyr patches*
- *mdm: main “mdm” package (with default modes)*
- *extra-modes: any other extra modes (currently, xephyr-gdm only)*
- *doc: this presentation and other documents*
- *compiled: stuff already compiled (not guaranteed to be the most recent)*

Compiling

- *Usually, choose one of those:*

```
$ make DESTDIR=$destdir {,install}
```

```
$ make ${DISTRO_NAME}{,-install}
```

- *Example:*

```
$ cd mdm
```

```
$ make ubuntu-8.04
```

```
$ sudo dpkg -i packages/mdm_0.0.1_i386.deb
```

- *Or*

```
$ cd mdm && sudo make ubuntu-8.04-install
```


TODO

- *Test with any machine other than mt2*
- *Improve the user interface (write-message.c)*
- *Add internationalization support!*
- *Add support for cards with multiple outputs (Aramis working on it)*
- *Find a reliable way to detect input and output devices*
 - input: hal?
 - output: fix Xorg? (and wait years for the distros)

TODO

- *Fix the ugly Makefiles*
- *Remove the need for patched libx11/Xephyr*
- *Create a repository, so users will just have to change sources.list and apt-get install*
- *Update the WIKI with the new stuff*
- *Fix the “/ ? ° ¿” abnt2 key*
- *Fix “ctrl+alt+backspace” in Xephyr*
- *Tell everyone about the package*
- *Update this document after fixing stuff*

Xorg-related problems

- *detect which cards can have multiple outputs*
 - need to do this before launching X, so we can set the “Virtual” parameter in xorg.conf
 - extend xrandr to change “virtual”?
- *detect the cards, their PCI devices and drivers*
 - if you run X with no xorg.conf, only one screen will start
 - IMHO, this should be fixed in Xorg
- *launch X with the maxium possible resolution*
 - WITHOUT knowing the monitor frequency!!
 - can xrandr do this for us?

DINF/PRD

- *Atualizar X e drivers*
 - os do Debian Etch não suportam as plaquinhas novas
 - os Xephyrs mais novos precisam só do patch do “-geometry”
- *Vou tentar fazer um backport do Lenny assim que tiver tempo disponível*
 - trocentos pacotes necessários!
- *Pro PRD, será necessário de mais um pacotinho pra “adaptar” o mdm com o sistema de boot remoto (mdm-netboot-aufs ?)*

Conclusion

- *Finally something that works everywhere*
 - After 1 year of waiting
 - Implemented in less than 3 weeks!

Questions?
Suggestions?
Complaints?

Thank you!

:wq