

Slax USB GNU Linux

Slax GNU/Linux Live USB drive prepared for the R course^[1] taught at the OMD-AjBCN

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1.1. Setup

1.1.1. Slax base iso

Slax 9.x: <https://slax.org>^[2]
(64 bits)

1.1.2. USB setup

- Get a 16Gb USB3 disk
 - "**SanDisk Ultra Flair USB 3.0 Flash drive**" seems to be the fastest compared to most usb 3.x usb disk brands, according to IMI techs (Andreu T.).
- Make two partitions
 - leave ~~4Mb~~ of **NO** free space at the beginning of usb disk (if you leave some empty space, windows doesn't search for the ntfs or fat32 partition, regardless of being the first or the second in sort order at the disk).
 1. ~7.5Gb ntfs (labelled as `7gbntfs`, in our case; adapt to your preferences)
 2. ~8.5Gb ext4 (labelled as `8gbext4`, in our case; adapt to your preferences)
- uncompress slax.iso in your linux disk (with `isomaster` for instance)
- create (with sudo) a folder slax in the new usb ext4 partition
- copy your slax folder to your usb ext4 partition
- run as root the file in your usb ext4 partition: `sudo bash ./slax/boot/bootinst.sh` to make your usb bootable
- shutdown your computer, and boot it again this time from your usb stick. Slax should boot
- make your desired changes following guidelines on slax.org website (see more details below, also)
- change keyboard by hand tweaking a file in the persistent changes folder

- Edit this file `/root/.fluxbox/startup` and add there near the top a line such as



```
setxkbmap es
```

- reboot slax to check that your changes were kept as desired. Power off the machine.
- test the usb disk in a computer booting MS Windows or Mac OSX, to double check that the disk is recognized by default and you can read and write to this partition from that OS.
- clone your usbdisk (with partitions and all) with dd.
 - find your usb-disk device name (`/dev/sdc` in this example). You can find out with command `sudo lsblk` or `sudo fdisk -l`
 - make image with dd. Example:



```
sudo dd if=/dev/sdc  
of=/media/xavi/mollero_ext4/usbdisk/backup_slaxomdr_yymmdd.img bs=4M  
status=progress
```

- clone back over another usb with dd again (or theoretically with a dd GUI, but gdiskump fails for me on Kubuntu 16.04)
To restore the image to another USB drive just invert the process. Just make sure that the new USB drive (`/dev/sdd` in this example) is as big or bigger than the original one



```
sudo dd if=/media/xavi/mollero_ext4/usbdisk/backup_slaxomdr_yymmdd.img  
of=/dev/sdd bs=4M status=progress
```

1.1.3. Customizations

1.1.3.1. Quick list

1. Keyboard
2. Add parcellite to systray (ideally run by default when booting in).
3. Add kupper to systray (ideally run by default when booting in). But fails to say when you clone the konsole that is shown up when running it.
4. Background
5. Clock
6. Installed programs
 1. firefox-esr
 2. R RStudio et al. (see bash script below)
 3. gnumeric (spreadsheet)
 4. abiword (text-processing program)

5. clamTk (antivirus for windows os and partitions)
6. testdisk (in case of need)
7. git-cola (git GUI)
7. Associate through file manager "Pcmanfm":
 - pdf with firefox web browser
 - Rmd & R with RStudio
 - xls & xlsx with gnumeric spreadsheet program
 - csv, README.md & LICENSE to leafpad (plain text editor)

1.1.3.2. My Custom Directory

You can place new files in the usb disk so that they show up in the default "home" folder of the default root user once the usb is booted. Example:

- Custom directory (e.g. **my_custom_dir**) with files under the Documents folder of the default root user.
 - You need to place the folder "**my_custom_dir**" at (adapt path to your case):
`/media/xavi/8gbext4/slax/changes/home/guest/Documents/my_custom_dir/`
- Alternatively, you can place those files under the ntfs partition (`7gbntfs`), so that they are viewable from the slax system And from another computer with MS Windows (or Mac OSX) operating systems and operate with those files normally as with any other usbdisk.

1.1.3.3. Mount usb ntfs sister partition by default

To allow the user to mount both partitions when booted with slax linux, you can run a shell command to mount the ntfs partition at run time (it doesn't mount automatically at boot time for some unknown reason).

You can make a shell script with this command in a terminal window:



```
nano /root/munta_usb.sh
```

and add these contents inside:

File contents



```
mount -a  
pcmanfm /media/sdb1 &
```

And save the file to disk.

Then, change its perms so that it can be executable, with this command:



```
chmod +x /root/munta_usb.sh
```

Later on, users will have to open the file manager, and click on the "munta_usb.sh" file in the default folder shown, and choose "Execute" (the button at the left of the pop-up window).

1.1.3.4. Fix RStudio 1.2.x launcher

RStudio 1.2.x in Slax 9.8+ doesn't seem to run by default, for unknown reasons, while it did run with no problems in Slax 9.2 and using Rstudio 1.1.x. The solution/workaround involves calling rstudio with `--no-sandbox` argument. To make this change work for the menu entry in Slax, you need to edit the file holding the information of the menu entry in slax. Slax uses xlnch program to manage running programs from a nice and small UI (<https://xlunch.org>^[3]). Config file for rstudio is stored at: `/usr/share/applications/rstudio.desktop`. That file needs to get the call to rstudio tweaked to add that `--no-sandbox` parameter. Final version should be like:

Updated contents of `/usr/share/applications/rstudio.desktop`



```
[Desktop Entry]
Exec=/usr/lib/rstudio/bin/rstudio --no-sandbox %F
Icon=rstudio
Type=Application
Terminal=false
Name=RStudio
Categories=Development;IDE;
MimeType=text/x-r-source;text/x-r;text/x-R;text/x-r-doc;text/x-r-sweave;text/x-r-
markdown;text/x-r-html;text/x-r-presentation;application/x-r-data;application/x-r-
project;text/x-r-history;text/x-r-profile;text/x-tex;text/x-
markdown;text/html;text/css;text/javascript;text/x-chdr;text/x-csrc;text/x-
c++hdr;text/x-c++src;
```

In addition, and just in case this file is not added to the changes folder in slax usb, I also copied that `rstudio.desktop` file to another folder, the folder where xlnch.org documentation says that a user can override the values from the systemwide configuration: `/root/.local/share/applications/`

1.1.3.5. https certs for imi and ajbcn related domains

Get these certs from the samba share at Ajuntament de Barcelona (See http://omd-gid.imi.bcn/Kubuntu#Certificat_del_navegador^[4]) and import them to firefox browser certificate authorities:

- Certificat IMI arrel (IMICARaiz.crt)
- IMI Entitat certificadora (IMICAEmisora1V01.crt)
- FWIMICA.crt

1.1.3.6. https cert for gitlab.ajuntament.bcn through git

Trust the certificate from gitlab.ajuntament.bcn also through git command calls.

Command in a terminal window



```
openssl s_client -showcerts -servername gitlab.ajuntament.bcn -connect
gitlab.ajuntament.bcn:443 </dev/null 2>/dev/null | sed -n -e '/BEGIN\
CERTIFICATE/,/END\ CERTIFICATE/ p' > ~/gitlab-ajuntament-bcn.pem
cat ~/gitlab-ajuntament-bcn.pem | tee -a /etc/ssl/certs/ca-certificates.crt
```

1.1.3.7. Pending

Pending to test/implement

- set parcellite to boot by default by means of tweaking whatever system file is needed?
- test synaptic instead of kupfer?
- add some terminal window program that allows copy & paste (default one doesn't). Terminator didn't work (didn't install properly for some reason, in some tests I did in the early stages of customizing the usbdisk). geany did the trick (with the embedded terminal). And Rstudio terminal panel.

1.1.4. Troubleshooting

1.1.4.1. Your customized slax usbdisk can't enter the graphical mode

Setting up the slax-usb stick in one computer, might set the temp path under the "**changes**" directory as a symbolic link to a temp folder in a hard disk (e.g. +/dev/sda5/tmp/+-) of the physical computer where you are testing or tweaking the usb disk in. The first time I saw this, the temp folder was set to reuse an ext4 partition on the host computer where the usbdisk was plugged in.

However, when you place your customized usbdisk into another computer, that tmp folder might not exist in that other computer, and therefore, your customized slax wouldn't be able to boot into the graphical mode, due to being unable to create temp files or folders for the Xorg graphic display, or others.

Therefore, if the customized slax usbdisk is not able to boot into the graphical mode but only in text mode, you can log in that text screen with the usual credentials (user `root`, password: `toor`), as

indicated in that login screen itself), and attempt to start the graphical mode by hand by means of running the command `startx`. See the error message that will be displayed in the screen. If it says anything related to being not able to create a file or folder under tmp, then you need to double check that the folder where the symbolic links points to does exist.

One quick workaround to solve this problem is to remove the `tmp` symbolic link and create a real `tmp` folder in the usbdisk instead. It might make things slower, but at least it will work.

1.1.5. Custom modules (.sb)

Following the guidelines on how to make custom slax modules:

<https://www.slax.org/customize.php>^[5]

- Background image: `/modules/slax_wallpaper_ajbcn.sb`
- Firefox: `06-firefox.sb`

1.1.6. Install extra system programs



```
apt install dirmngr apt-transport-https ca-certificates software-properties-common
gnupg2
apt install -y default-jre default-jdk
echo "deb http://ppa.launchpad.net/webupd8team/java/ubuntu xenial main" | tee
/etc/apt/sources.list.d/webupd8team-java.list
echo "deb-src http://ppa.launchpad.net/webupd8team/java/ubuntu xenial main" | tee -
a /etc/apt/sources.list.d/webupd8team-java.list
apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv-keys EEA14886
apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv-keys C2518248EEA14886
apt update
apt install oracle-java8-installer # falla per que repo ppa:webupd8team/java sembla
no estar mantingut ja?
apt install -y squashfs-tools syslinux-utils libnss-winbind winbind cifs-utils nfs-
common git git-cola mc htop parcellite kupfer p7zip-full printer-driver-cups-pdf
meld sendmail gigolo g++
apt-key adv --keyserver hkp://keys.gnupg.net:80 --recv-key
'E19F5F87128899B192B1A2C2AD5F960A256A04AF'
add-apt-repository 'deb https://cloud.r-project.org/bin/linux/debian stretch-
cran35/'
#apt install -y r-recommended r-cran-xml libgraphviz-dev libcairo2-dev r-cran-
cairodevice freeglut3 freeglut3-dev r-cran-rgl r-cran-rgl r-cran-misc3d libx11-
dev libxt-dev libcurl4-gnutls-dev libxml2-dev r-cran-xml libgraphviz-dev libcairo2-
dev bwidget tk-table libv8-dev r-cran-rjava libmpfr-dev libc6 libssl-dev texlive-
latex-extra texlive-lang-spanish libx11-dev libxml2-dev libxt-dev r-cran-misc3d
subversion git texmaker tk-dev unaccent xvfb libgdal-dev libproj-dev libmagick++-
dev r-cran-rcolorbrewer r-cran-doparallel libssh2-1-dev libudunits2-dev libgdal-dev
libgeos-dev libproj-dev libjq-dev libprotobuf-dev protobuf-compiler libssl-dev
```

```

libcairo2-dev libapparmor-dev # per a r 3.3
apt install -y r-recommended libgraphviz-dev libcairo2-dev freeglut3 freeglut3-
dev libx11-dev libxt-dev libcurl4-gnutls-dev libxml2-dev libgraphviz-dev libcairo2-
dev bwidget tk-table libv8-dev libmpfr-dev libc6 libssl-dev texlive-latex-extra
texlive-lang-spanish libx11-dev libxml2-dev libxt-dev subversion git texmaker tk-
dev unaccent xvfb libgdal-dev libproj-dev libmagick++-dev r-cran-rcolorbrewer
libssh2-1-dev libudunits2-dev libgdal-dev libgeos-dev libproj-dev libjq-dev
libprotobuf-dev protobuf-compiler libssl-dev libcairo2-dev libapparmor-dev # per a
r 3.6
R CMD javareconf
apt install gnumeric abiword clamtk testdisk # extra programs for word precessing
and spreadsheet programs, antivirus and other useful goodies smbclient samba
gadmin-samba

```

1.1.7. Install R packages



```

if (!require("devtools")) install.packages("devtools"); require("devtools")

install.pacman <- function(){
# Check Availability of package manager "PacMan" (and install it, if missing)
# if you have R < 3.5
if (version$major==3 && version$minor < 5) {
  if (!require("pacman")) {
    # Instal·la devtools si et cal
    if (!require("devtools")) install.packages("devtools"); require("devtools")
    cat("R Version: ", paste0(version$major,".",version$minor), ". ")
    cat("Tens una versió de R anterior a 3.5, per tant, instal·lem la versió
corresponent de PacMan (0.4.1)\n")
    # Instal·la la darrera versió de pacman (0.4.1) que anava abans de la que va
només amb R 3.5+ (pacman v0.5)
    install_version("pacman", version = "0.4.1"); require("pacman")
  }
} else {
# if you have R 3.5 or higher
if (!require("pacman")) install.packages("pacman"); require("pacman")
}
}
install.pacman()

# Carrega (i instal·la i si cal abans) els paquets que s'empren a les sessions del
curs
p_load(addinslist, aplpack, autocogs, bitops, brew, cartogram, cartography,
caTools, checkpoint,
      collapsibleTree, colorspace, condformat, cowplot, CRANsearcher, crosstalk,
cshapes,
      d3heatmap, data.table, devtools, dichromat, doMC, doParallel, dplyr, DT,

```

```

editData, esquisse,
  eurostat, ff, flextable, foreign, formattable, fs, future.apply, gapminder,
  geofacet, geogrid, geofacet, GGally, ganimate, ggforce, ggiraph,
ggiraphExtra, gmap,
  gitlabr, googleVis, Hmisc, htmltools, htmlwidgets, huxtable, janitor,
kableExtra, knitr,
  leaflet, leaflet.extras, leaflet.minicharts, logging, magick, mapdeck,
mapmisc, maps, mapview, marmap,
  mclust, Nozzle.R1, oce, OceanView, officer, openxlsx, pacman, parallel,
pivottabler, plotly,
  plotrix, plyr, png, purrr, purrrlyr, RColorBrewer, RCurl, raster, readr,
readxl, relimp, reshape2,
  rhandsontable, rio, rJava, rjson, rmapshaper, rmarkdown, rnaturalearth,
rnaturalearthdata,
  RODBC, rosm, rpivotTable, rsvg, R.utils, rworldmap, scales, sem, sf, sp,
SnowballC, stringr,
  svglite, svgPanZoom, tictoc, tidyverse, tm, tmap, treemap, trelliscopejs,
vembedr,
  VennDiagram, webshot, widgetframe, wordcloud, wordcloud2, XML, xml2, xtable)

if (version$major==3 && version$minor >= 4) { # requereixen R 3.4+
  p_load(ggsn)
}

if (version$major==3 && version$minor >= 5) { # requereixen R 3.5+
  p_load(GADMTools)
}

if (!require("rnaturalearthhires")) install.packages("rnaturalearthhires",
  repos = "http://packages.ropensci.org",
  type = "source")

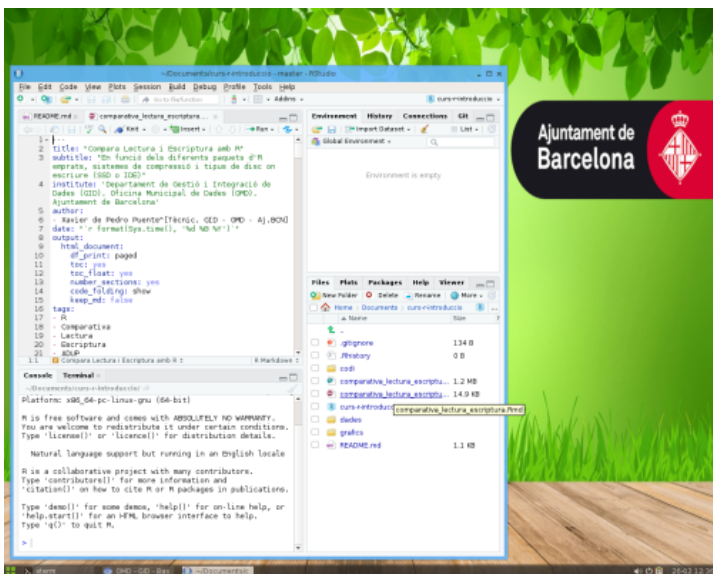
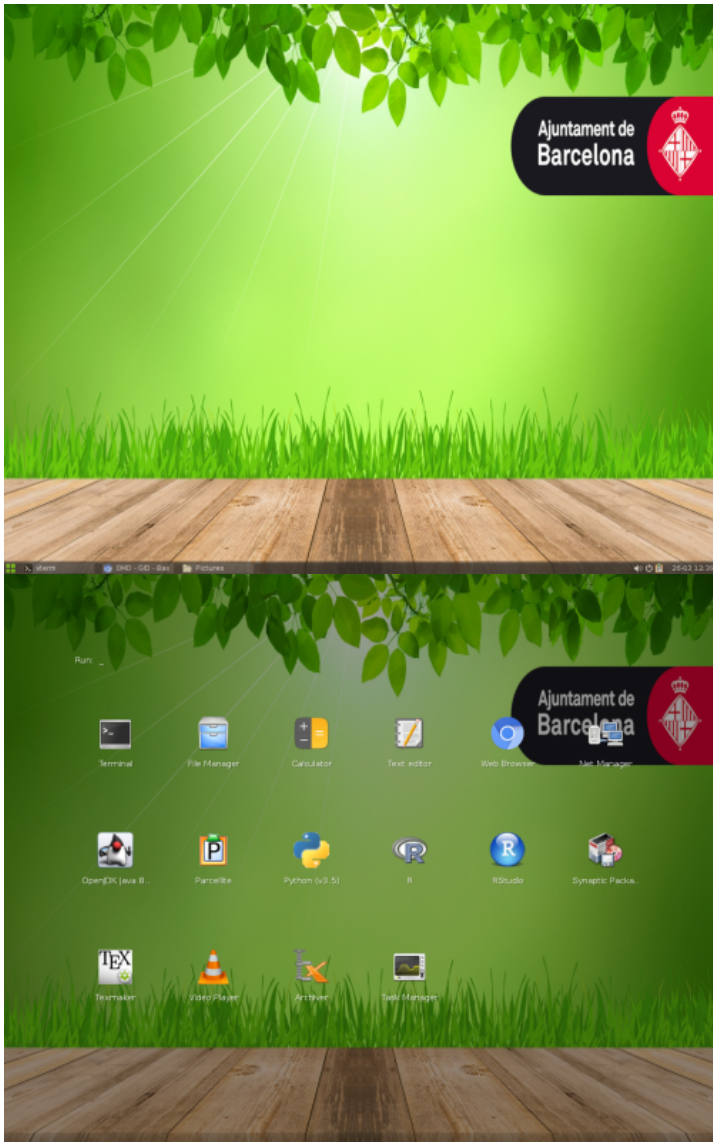
# Llista de mínims
p_load("devtools", "plotly", "stringr", "xml2", "data.table", "xtable", "plyr",
"dplyr", "reshape2", "rjson", "d3heatmap", "htmlwidgets", "googleVis", "knitr",
"rmarkdown", "addinslist", "tidyverse", "magick", "webshot", "officer",
"flextable", "huxtable", "RODBC", "leaflet", "gitlabr", "colorspace", "mapdeck",
"rsvg", "png", "cartography", "rJava", "sf", "tmap", "rio", "caTools", "bitops",
"kableExtra", "RCurl", "XML")

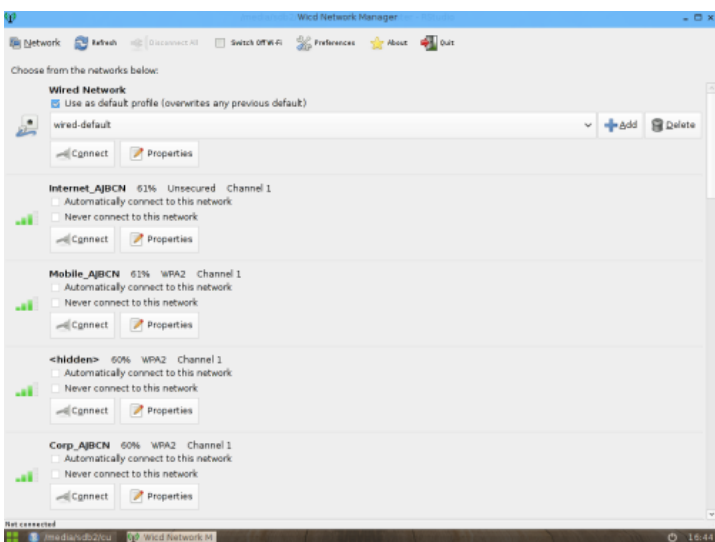
```

Addins (not in CRAN but elsewhere):

- `mapedit.addin`

1.2. Screenshots





1.3. Pending

- nothing, afaiK

Alias names for this page:

Slax | SlaxUSB

^[1] <https://gitlab.com/radup/curs-r-introduccio>

^[2] <https://slax.org>

^[3] <https://xlunch.org>

^[4] http://omd-gid.imi.bcn/Kubuntu#Certificat_del_navegador

^[5] <https://www.slax.org/customize.php>