



HOW TO use BCD

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1 Summary

BCD is a simple tool to build ISO using **urpmi** to create a mini chroot of the future system, and **urpmq** command to calculate dependencies of packages on the future DVD/CD.

2 The environment

BCD is available in Mandriva subversion repository: http://svn.mandriva.com/svn/soft/build_system/bcd

Some release of BCD has been packaged, but you should use the svn version, because this tool is under development, and really unstable.... All previous XML configuration's file are compatibles with previous version of BCD.

Create a user on the system:

```
adduser plop
```

You must create a directory to store all **urpmq** queries. All queries done by **urpmq** per package are stored in this directory + product-name-release-arch. To speed up the process of creating ISO, next time you run BCD, it will check for each package in input list if there is a file which contains the result of the urpmq queries, if BCD found one then it will use it, else it will redo an **urpmq --requires-recursive --sources package_name** and store the result in a new file. So if you have update your repository, you should clean this directory. If you have update some packages, you should remove file relative to those packages, to redo the **urpmq** queries otherwise BCD will use the old result of the **urpmq** queries, and this can lead to error if deps are no more the same. Moreover if you change the tag **<nosuggests></nosuggests>** to yes or no, you must erase all your previous queries. If your media contains SRPMS, the result of previous **urpmq** queries won't be used, because we want to calculate **buildrequires** in this case.

```
mkdir -p /var/lib/bcd
```

Give you user RW on this directory:

```
chown plop.users /var/lib/bcd
```

Give some **sudoers** right to your user:

```
vi /etc/sudoers
plop ALL=(root) NOPASSWD:/bin/mount, /bin/umount, \
    /usr/sbin/chroot, \
    /usr/sbin/urpmi, \
    /usr/sbin/urpmi.addmedia, \
    /usr/sbin/urpmi.removemedi, \
    /bin/rm
```

Checkout the source of BCD:

```
svn co http://svn.mandriva.com/svn/soft/build_system/bcd
```

Prepare your distribution repository, you should have an access to it, or a local copy.

```
[plop@isobel /mnt/BIG/dis/official] 04:04:28pm
$ ls
2008.0/ 2008.1/ 2009.0/ 2009.1/ 2010.0/ iso/
$ ls -r 2010.0
x86_64/ SRPMS/ i586/
```

You need to install some tools and deps to be able to use bcd:

```
urpmi perl-File-Copy-Recursive sudo urpmi perl-Parallel-ForkManager \
    cdrkit-genisoimage cdrkit-isotools syslinux \
    gfxboot mandriva-gfxboot-theme drakxtools-backend \
    mandriva-Free-theme rpmtree rpmcheck
```

Now your system should be ready to build ISO.

3 configuration file

You need to have an XML configuration file. You should use an example provided and adapt it to your configuration file.

4 conf xml

Example of a commented conf.xml file. Keep in mind that most of those parameters are correct, and you don't need to change whole of them. Examples are available in this package, so please use one of them to base your configuration.

You should only change those one:

- {nameid}
- {version}
- {arch}
- {repo}{path}
- {media}{list}*
first it's an xml file
- {iso}{header}*
first it's an xml file

```
<?xml version='1.0' ?>
```

name of the product

```
<productname desc="The Linux product">
```

identification of the product, used for the name of the final ISO

```
<nameid>XtreemOS</nameid>
```

you should really care about this parameter, how many **urpmq** could you launch at the same time ? 10 is an high value, use it only on multi-core computer.

```
<nb_fork>10</nb_fork>
```

If you want to resign you packages, define in wich file you store the password to sign RPMS, and the gnupg file used to sign them. BCD can only sign for the moment all packages with the same key. It will be able to sign later a media with a specific public key.

```
<signature>/home/xtreemos/.signature.gpg</signature>
```

```
<rpmrc>/home/xtreemos/.rpmrc</rpmrc>
```

based_on parameter defines on wich version of Mandriva this product will be built. This parameter define if we need synthesis or hdlists (since 2009.1 only synthesis are needed) It will be use to get the path of the Mandriva repository.

```
<based_on>2009.0</based_on>
```

urpmqlogs paramater define the directory to store previous urpmq queries, if not defined the system will use the /var/lib/bcd dir.

```
<urpmqlogs>/home/plop/urpmqlogs</urpmqlogs>
```

Arch parameter is mandatory, it will be also used to get the path of the Mandriva repository

```
<arch>i586</arch>
```

path to the repository (without version and arch)

```
<repo desc="Where is the repository of the distribution">
  <path>/mnt/BIG/dis</path>
</repo>
```

so the full path of the Mandriva repository will be in our example

```
</mnt/BIG/dis/2009.0/i586>
```

workdir is where you want to store the result of the build. Two directories will be built, **build** to store the base of the DVD, **iso** to store the final ISO.

```
<workdir desc="Where is my working dir">
  <path>/home/xtreemos/build_bcd</path>
</workdir>
```

basename of log files, if you want you can change it, but this option should not exist, i should remove it..

```
<tocopy_file>tocopy_plop</tocopy_file>
```

define media used and excluded in the initial chroot

```
<chroot_media>Main,Main Updates</chroot_media>
<chroot_media_exclude>Main Backports,Main Testing</chroot_media_exclude>
```

all Isolinux information

```
<isolinux desc="isolinux info">
  <defaultpath>isolinux</defaultpath>
```

if you want to point to a custom **isolinux** directory

```
<fullpath>/home/xtreemos/export_i386/isolinux</fullpath>
```

if you want to add a entry in your **isolinux.cfg**. In this example we add an HDT entry (hardware detection tool)

```
<!-- add hdt entry in syslinux.cfg -->
<entry name="hdt" desc="Main media">
  <bin>/usr/lib/syslinux/hdt.c32</bin>
  <label>hdt</label>
  <kernel>hdt.c32</kernel>
  <append>modules=modules.pci</append>
</entry>
```

some section are mandatory to keep the array structure of the xml file

```
<!-- keep this entry to create an array ref -->
<entry></entry>
```

if you want to copy extra files to the isolinux buildir

```
<tocopy name="pcimap">
  <file>/lib/modules/2.6.31-server-2mnb/modules.pcimap</file>
</tocopy>
<tocopy name="ids">
  <file>/usr/share/pki.ids</file>
</tocopy>
<tocopy></tocopy>
</isolinux>
```

all information relatives to the installer (stage2)

```
<installer desc="path to the Mandriva installer (stage1/stage2)">
  <defaultpath>install</defaultpath>
```

if you want to use a custom installer, really usefull if you custom it

```
<fullpath>/home/xtreemos/export_i386</fullpath>
```

path to custom advertising (images used during slideshow)

```
<advertising>
  <defaultpath>advertising</defaultpath>
  <fullpath>/home/xtreemos/Build/pieces/advertising</fullpath>
</advertising>
```

full path and name of your patch for stage2 to copy in the **buildir/install** directory. This is an option, leave it blank if you don't use a patch

```
<patch>/home/xtreemos/Build/pieces/patch-oem.pl</patch>
</installer>
```

Theme to use to patch **all.rdz** file. Theme name will be used to install mandriva-release-THEMENAME and avoid problem of mixing theme on a same product

```
<!-- theme must be available to path altx/all.rdz files -->
<theme name="mandriva-release-Free">
  <theme>Mandriva-Free</theme>
  <bootsplash>Mandriva-Free</bootsplash>
  <bootsplash_path>/usr/share/bootsplash</bootsplash_path>
  <gfxboot_path>/usr/share/gfxboot</gfxboot_path>
</theme>
```

media section will defined wich media you want to use and you want to create on the DVD. Keep in mind that it works like **urpmi** and **urpmq**, if you want to install a package, you need all his dependencies, so for some specific package like restricted one on a 64bits product, you need to use the extra parameter

```
<media_supp>Main, contrib, main32</media_supp>
```

to be sure that you will provide all needed deps. For each list bcd will add a media, and will add **updates/backport/testing** if the tag is set to yes. Be sure you use a uniq media name, because **urpmi** will not add a new media with a name wich already exist.

```
<media desc="media to take into account to build the ISO">
<!-- name of the first media wich contains basesystem and kernels -->
<first_media>Main</first_media>
<update_prefix>Updates</update_prefix>
<!-- use the supp_media option if you needed to use media option of urpmi, usefull for
wich need main and contrib to be installed, use the urpmi syntax of \-\-media (no space)
```

drop option is usefull to remove the media before the rpmcheck (usefull for media main32)

```
<drop>yes</drop>
```

remove_noarch is used to remove all noarch packages from a media (usefull for media main32 on pwp64 and free64)

```
<remove_noarch>yes</remove_noarch>
```

input list for a specific media

```
<media_supp>Main, Main Updates, Contrib, Contrib Updates</media_supp>-->
<list name="Main" desc="Main_media">
  <!-- MANDATORY list of wanted packages on the iso -->
  <input name="base">
    <file>lists/input_main</file>
  </input>
```

```

<input name="lang">
  <file>lists/languages</file>
</input>
<!-- to create an array you must keep this even if it is empty -->
<input name="xos">
  <file>lists/xos_list</file>
</input>

```

This media contains SRPM, so we want to calculate all buildrequires and put them in the ISO. All SRPMS will be stored in the <destmedia>

```
<srpm></srpm>
```

you can use an external media, but this media must have a **media_info** directory you must use external media if this media is not available in the repository. IE: restricted32 packages on a PowerPack 64bits product. The **fullpath_mediadir** option must be the full path to RPM (no subdirectory release/updates/backport).

```

<!-- external media repository with hdlists -->
<external name="xos">
  <fullpath_mediadir>/home/xtreemos/repo_xos/2009.0/i586/media/xtreemos/release</fullpa
</external>

```

Packages unwanted on the DVD are stored in exclude list. They will be removed at the end of the installation process. Just add the list of those packages in an exclude list.

```

<!-- MANDATORY list of unwanted packages on the iso -->
<exclude name="exclude">
  <file>lists/exclude_main</file>
</exclude>
<!-- to create an array you must keep this even if it is empty -->
<exclude>
</exclude>

```

Switch nosuggests options to yes if you don't want to use RPMS's suggests

```

<!-- nosuggests options should be yes or no -->
<nosuggests>no</nosuggests>

```

I will use the media name 'mediadir' and put it in the directory media/'destmedia' on the DVD.

```

<!-- will be taken in {repo}{version}{arch}/media -->
<mediadir>main</mediadir>
<destmedia>main</destmedia>

```

Where to find the pubkey in the repository (the path will be media/'mediadir'/'pubkey'). If you want to specify a specific file to use as pubkey, leave <pubkey> empty.

```

<pubkey>release/media_info/pubkey</pubkey>
<file_pubkey>/path_to_file/the_pubkey</file_pubkey>

```

if you want to use backports, testing or updates sub-media, set option to yes. Note: release media should be mandatory

```

<release>yes</release>
<updates>yes</updates>
<backport>no</backport>
<testing>no</testing>
</list>
<!-- keep this entry to create an array ref -->
<list></list>
</media>

```

all **media_info** informations are in this section

```
<mediainfo desc="All files relatives to media_info dir">
```

version will be used to generate a good media.cfg files (we don't use hdlits.cz since 2009.1 release)

```
<version>2009.0</version>
```

use 'fullpath' parameter to use custom rpmsrate/compssusers files

```
<!-- set fullpath if you want to use an files in a non MDV repository -->
<fullpath>/home/xtreemos/Build/pieces</fullpath>
<mediainfo_dir>media/media_info</mediainfo_dir>
<rpmsrate>rpmsrate</rpmsrate>
<compssusers>compssUsers.pl</compssusers>
<filedeps>file-deps</filedeps>
```

If you want to add an **urpmi** options to install packages. Be careful this can add or remove a lot of packages, and syntax in your list file can lead to error. ie: firefox- in a list file without the parameter *-a* will lead to an **urpmi** error, because there is a lot of firefox packages wich began with the strings firefox-

```
<urpmi_option>-a</urpmi_option>
```

If you want to do some extra filter to keep latest release of a packages on the DVD. All packages listed in no-filter are NOT filtered: so if you have more than one version of a package in the builddir, it will bypass the rpm comparaison. For all other packages available in the builddir, BCD will keep the latest one (rpm version comparaison)

```
<filter>lists/no-filter</filter>
```

media.cfg options, do a man gendistrib for more info

```
<askmedia desc="add for other media ?">
  <todo>yes</todo>
</askmedia>
<suppl desc="add an external media ?">
  <todo>yes</todo>
</suppl>
<xmlinfo>
<todo>no</todo>
</xmlinfo>
</mediainfo>
```

ISO section

```
<iso>
```

tag name and some extra parameters

```
<tag>rcl</tag>
<minor>0</minor>
<subversion>1</subversion>
<product>Download</product>
<branch>Devel</branch>
<type>basic</type>
<!-- dual arch not yet supported -->
<dualarch>no</dualarch>
<!-- SIZE is not YET USED !!! -->
<size>700</size>
<!-- media.cfg will be stored on genisoimage->{builddir}/{nameid}/{arch} -->
<mediacfg>media/media_info/media.cfg</mediacfg>
<hdlist>yes</hdlist>
<synthesis>yes</synthesis>
```


isohybrid option

```
<isohybrid>  
  <options>--fatfirst</options>  
</isohybrid>
```

info used by the genisoimage tool

```
<header desc="Iso header info">  
  <systemid>XtreemOS Linux</systemid>  
  <volumeid>XOS-2.0-i586</volumeid>  
  <volumesetid>XtreemOS Linux - 2.0 - i586 DVD </volumesetid>  
  <publisherid>XtreemOS</publisherid>  
  <datapreparer>XtreemOS-Linux</datapreparer>  
  <applicationid>XtreemOS Linux - 2.0</applicationid>  
  <copyrightid>XtreemOS Linux</copyrightid>  
</header>
```

genisoimage paramaters

```
<genisoimage desc="iso generation tool">  
  <options>-f -r -J -hide-rr-moved -nobak -cache-inodes -no-emul-boot -boot-load-size 4  
  <bootcat>isolinux/boot.cat</bootcat>  
  <!-- builddir and destdir will always use the workdir -->  
  <buildidir>build</buildidir>  
  <isodir>iso</isodir>  
</genisoimage>  
</iso>  
</productname>
```

5 architecture of a Mandriva DVD

A Mandriva CD/DVD contains:

- **autorun.inf** file and **dosutils** directory used under Windows OS to popup a dialog box
- **i586** or **x86_64** directory which contains the installer and packages and other stuff

In the **i586** or the **x86_64** directory:

- **doc**: full doc of how to install a Mandriva linux system
- **install**
 - **extra/advertising**: all images used in the slideshow while installing
 - **images**: file used to boot the system
 - **stage2**: **mdkinst.sqfs** is the stage2 of the installer, **rescue.sqfs** is the rescue system. Those two files are compressed in **squashfs**.
- **isolinux**: contains file used to boot the CD/DVD, and all **gfxboot** stuff
- **media**
- **main**: a media with packages
- **contrib**: another one with packages
- **media_info**
 - **compssUsers.pl**: describe category to display in "select package to install" step
 - **file-deps**: Use the given file to know which file dependencies are used by other media (man **genhdlist2**)
 - **hdlists**: old way to describe media on the DVD/CD
 - **media.cfg**: describe the repository of the DVD/CD
 - **rpmsrate**: a package is selected if its category is selected and depending of its priority (5=high, 1=very low)

6 Step by step process

- clean all previous build
- create all needed directory
- isolinux step
 - erase all previous isolinux directory in the build dir
 - copy the **isolinux** dir in the build dir
 - add entry if specified in the configuration file (like HDT)
 - switch theme for all images in **isolinux/altX** directory
- stage1 and stage2
 - copy all files from the *install* dir to the build dir
 - update all **advertising**
 - copy **dosutils** tools in the build dir
 - copy the doc
 - copy the patch file if present
- media step
 - list all media configured, and report missing list file
 - create media directory in the build dir
 - copy all pubkey for each media and report missing one
 - create the **media/media_info/media.cfg** file
 - copy the file-deps
 - copy the **rpmsrate**
 - copy **compssUsers.pl**
 - create a basic chroot of the futur Distribution (to be able to run urpmq)
 - mount loop distribution repository and external media in chroot
 - generate a list of rpm to copy and dependencies based on list files
 - concatenate all files
 - try to define the size of the DVD/CD (not yet implemented)
 - link or copy packages on the build dir
 - try to solve all double issue of packages
 - remove all packages listed in exclude list
 - use **gendistrib** to create hdlis and synthesys
 - launch **rpmcheck** to check missing deps conflicts and other failure
 - use the rpmcheck's package list to solve missing deps using urpmq
 - re-link or copy packages on the build dir
 - re-try to solve all double issue of packages
 - re-remove all packages listed in exclude list
 - re-launch **gendistrib** to create hdlis and synthesys
 - re-launch **rpmcheck** to check missing deps conflicts and other failure
 - unmount all mountloop disrectory (distribution repository and extra media)
 - remove hdlis if no more needed (Mandriva version > 2010.0)

- show the size of the DVD (not yet implemented)
- ISO step
 - create the **product.id** file
 - copy text files (INSTALL, README etc...)
 - create the idx
 - create the ISO
 - **isohybrid** the ISO
 - create the md5 and sha1
 - create an html report web page

7 list files

- input list: list of rpm needed on the CD. Those list should contains the name or the provides of a package. You may also use a CAT_XXX from the rpmsrate file, with the weight parameter.

```
ie: of lists/input_main
INSTALL 1
CAT_X 1
CAT_GNOME 1
CAT_AUDIO 1
aumix
task-lxde
```

- exclude list: list of unwanted packages on the CD. Be careful to do not exclude mandatory packages or you DVD/CD will be not usable. Rpmcheck will report any bug in hdlis at the end of the 'media' step process. Packages listed in exclude list will be removed from the DVD/CD at the end of the build process.
- no-filter: list of RPM you don't want to compare. Usefull to keep more than one version of a package, or use an old one.

8 BCD options

- First arg must be the XML configuration file
- Second arg must be
 - stagex: update the stage1/stage2 in builddir
 - isolinux: update the isolinux in builddir
 - clean: clean the builddir and isodir
 - media: create the list of wanted packages, create all media in builddir, link/copy packages in build-dir/media, create the media.cfg, and generate the hdtlist/synthesis
 - gendistrib: create the hdtlists/synthesis in builddir (depends on the based_on tag)
 - rpmcheck: check the hdtlist in the buildir
 - list: list all media and list of input/exclude (from the xml conf file)
 - mediarepo: list all medias availables in the repository
 - checkrepo: rpmcheck main hdtlists in the repository
 - all: run all stage in order to get an ISO
 - md5: create MD5 sum of the ISO
 - resign: resign all rpms with a password and a gpg file
 - doble: check doble rpm in the media build_dir
 - kernel: compare kernel and keep the latest one
 - nodoble: don't check doble rpm in the media build_dir
 - info: parse the configuration file (usefull to check the XML syntax)
 - clean: clean previous urpmq log file
 - html: generate a log report web page
 - iso: create the final ISO from the builddir
 - verbose: be more verbose
- extra arg:
 - noiso: don't build the iso (md5, isohybrid) in case of 'all' process
 - copy: copy rpm instead of link them from the repository
 - verbose: verbose mode to report more info in the output

9 Examples of use

the folowing example will do all step to create an ISO:

```
bcd mdv-20091.xml all
```

the following example will create the build dir without creating ISO:

```
bcd.pl mdv-20091.xml all noiso
```

same as above but copy packages instead of link them from the repository:

```
bcd.pl mdv-20091.xml all noiso copy
```

the following will update the isolinux in the build directory:

```
bcd.pl mdv-20091.xml isolinux
```

to check the main hdlist in the repository with rpmcheck

```
bcd.pl mdv-20091.xml checkrepo
```

clean the builddir and isodir

```
bcd.pl mdv-20091.xml clean
```

10 XtreamOS example

10.1 introduction

XtreamOS is an European project (<http://xtreemos.eu/>) to build and promote a Linux-based Operating System to Support Virtual Organizations for Next Generation Grids. This project was one of the platform used to develop and test BCD.

XtreamOS GNU/Linux distribution is based on a Mandriva 2009.0 with updates, and an external repository `xtreemos`, which contains sub-media release, updates and testing. We will explain the full configuration file for `x86_64` arch to help you understand the way to create one for your need.

10.2 the `xos64.xml` file

The name of the product will be XtreamOS, we want to do only 5 fork of `urpmq` queries, this product is based on a Mandriva 2009.0 product, and we want to build a DVD for `x86_64` architecture. The repository of the distribution is available at `/mnt/BIG/dis` directory, and I want to create my build dir and iso dir in the `/home/xtreemos/build_bcd` directory.

```
<?xml version='1.0'?>
<productname desc="The Linux product">
  <nameid>XtreamOS</nameid>
  <nb_fork>5</nb_fork>
  <based_on>2009.0</based_on>
  <arch>x86_64</arch>
  <repo desc="Where is the repository of the distribution">
    <path>/mnt/BIG/dis</path>
  </repo>
  <workdir desc="Where is my working dir">
    <path>/home/xtreemos/build_bcd</path>
  </workdir>
</productname>
```

The prefix for log will be `tocopy_plop`. BCD will use the installer in the `/home/xtreemos/export_x86_64` directory, and use the `/home/xtreemos/Build/pieces/patch-oem.pl` patch. New advertising will be taken from `/home/xtreemos/Build/pieces/advertising` directory. If you want to use proprietary firmware in stage1 (from the `non-free/initrd-firmware` package) set the `firmware` option to `yes`.

```
<tocopy_file>tocopy_plop</tocopy_file>
  <isolinux desc="isolinux info">
    <defaultpath>isolinux</defaultpath>
  <firmware>yes</firmware>
    <fullpath>/home/xtreemos/export_x86_64/isolinux</fullpath>
    <entry>
    </entry>
    <!-- keep this entry to create an array ref -->
    <entry></entry>
  </isolinux>
  <installer desc="path to the Mandriva installer (stage1/stage2)">
    <defaultpath>install</defaultpath>
    <fullpath>/home/xtreemos/export_x86_64</fullpath>
    <patch>/home/xtreemos/Build/pieces/patch-oem.pl</patch>
    <advertising>
      <defaultpath>advertising</defaultpath>
      <fullpath>/home/xtreemos/Build/pieces/advertising</fullpath>
    </advertising>
  </installer>
```

Theme is the default one


```

<!-- theme must be available to path altx/all.rdz files -->
  <theme name="Mandriva-Free">
    <bootsplash>Mandriva-Free</bootsplash>
    <bootsplash_path>/usr/share/bootsplash</bootsplash_path>
    <gfxboot_path>/usr/share/gfxboot</gfxboot_path>
  </theme>

```

The first list is the Main one, we want to take into account all updates from this media, but we don't want to take into account suggests for packages. Package chosen from the list, and all dependencies will be stored into **media/main** directory of the DVD.

```

<media desc="media to take into account to build the ISO">
  <list name="main" desc="Main_media">
    <input name="base">
      <file>lists/input_main</file>
    </input>
    <!-- to create an array you must keep this even if it is empty -->
    <input>
      <file>lists/to_add</file>
    </input>
    <!-- MANDATORY list of unwanted packages on the iso -->
    <exclude name="exclude">
      <file>lists/exclude_main</file>
    </exclude>
    <!-- to create an array you must keep this even if it is empty -->
    <exclude>
    </exclude>
    <!-- nosuggests options should be yes or no -->
    <nosuggests>yes</nosuggests>
    <!-- will be taken in {repo}{version}{arch}/media -->
    <mediadir>main</mediadir>
    <destmedia>main</destmedia>
    <pubkey>release/media_info/pubkey</pubkey>
    <release>yes</release>
    <updates>yes</updates>
    <backport>no</backport>
    <testing>no</testing>
  </list>

```

We create the media **contrib**, taken from the Mandriva 2009.0 repository to be able to get dependencies from packages for other media (here the XtremOS media). We don't use list, because we don't want to take packages from contrib except dependencies for packages in the XtremOS media.

```

<list name="contrib" desc="Contrib_media">
  <!-- to create an array you must keep this even if it is empty -->
  <input>
  </input>
  <input>
  </input>
  <!-- MANDATORY list of unwanted packages on the iso -->
  <exclude name="exclude">
    <file>lists/exclude_contrib</file>
  </exclude>
  <!-- to create an array you must keep this even if it is empty -->
  <exclude>
  </exclude>
  <!-- nosuggests options should be yes or no -->

```

```

<nosuggests>yes</nosuggests>
<!-- will be taken in {repo}{version}{arch}/media -->
<mediadir>contrib</mediadir>
<destmedia>main</destmedia>
<pubkey>release/media_info/pubkey</pubkey>
<release>yes</release>
<updates>yes</updates>
<backport>no</backport>
<testing>no</testing>
</list>

```

The **r_xos** media is the XtremOS release media. We need to use the previously defined Contrib media to be able to solve dependencies for packages in this media. We don't want to use **suggests** for packages, and this media is not available in the Mandriva 2009.0 repository, but in an external directory. We set the updates flag to yes to use all packages available in updates.

```

<list name="r_xos" desc="r_xos_media">
  <media_supp>Contrib</media_supp>
  <input>
  </input>
  <!-- to create an array you must keep this even if it is empty -->
  <input></input>
  <!-- MANDATORY list of unwanted packages on the iso -->
  <exclude name="exclude">
    <file>lists/exclude_main</file>
  </exclude>
  <exclude name="exclude">
    <file>lists/exclude_contrib</file>
  </exclude>
  <!-- to create an array you must keep this even if it is empty -->
  <exclude>
  </exclude>
  <!-- nosuggests options should be yes or no -->
  <nosuggests>yes</nosuggests>
  <!-- will be taken in {repo}{version}{arch}/media -->
  <mediadir>xtreemos</mediadir>
  <destmedia>main</destmedia>
  <external name="r_xos">
    <fullpath_mediadir>/home/xtreemos/Build/pieces/x86_64_xos_re
  </external>
  <!--
  <fullpath_mediadir>/home/plop/iso/final/t/x86_64/media/main</full
  -->
  <pubkey>release/media_info/pubkey</pubkey>
  <release>yes</release>
  <updates>yes</updates>
  <backport>no</backport>
  <testing>no</testing>
</list>

```

The product version is 2.1.1, and we use custom **compssUsers.pl** and **rpmsrate** file available in the **/home/xtreemos/Build/pieces** directory.

```

<mediainfo desc="All files relatives to media_info dir">
  <version>2.1.1</version>
  <!-- set fullpath if you want to use an files in a non MDV repository -->
  <fullpath>/home/xtreemos/Build/pieces</fullpath>

```

```

    <mediainfo_dir>media/media_info</mediainfo_dir>
    <rpmsrate>rpmsrate</rpmsrate>
    <compssusers>compssUsers.pl</compssusers>
    <filedeps>file-deps</filedeps>
    <filter>lists/no-filter</filter>
    <urpmi_option> --wget </urpmi_option>
    <askmedia desc="add for other media ?">
        <todo>yes</todo>
    </askmedia>
    <suppl desc="add an external media ?">
        <todo>yes</todo>
    </suppl>
    <xmlinfo>
        <todo>no</todo>
    </xmlinfo>
</mediainfo>

```

Tag will be beta1, and we have defined some custom ISO header. All other option are standard one.

```

<iso>
    <tag>beta1</tag>
    <minor>1</minor>
    <subversion>1</subversion>
    <product>Download</product>
    <branch>Devel</branch>
    <type>basic</type>
    <!-- dual arch not yet supported -->
    <dualarch>no</dualarch>
    <!-- SIZE is not YET USED !!! -->
    <size>700</size>
    <!-- media.cfg will be stored on genisoimage-->{builddir}/{nameid}/{arch} -->
    <mediacfg>media/media_info/media.cfg</mediacfg>
    <hdlist>yes</hdlist>
    <synthesis>yes</synthesis>
    <header desc="Iso header info">
        <systemid>XtreemOS Linux</systemid>
        <volumeid>XOS-2.1.1-x86_64</volumeid>
        <volumesetid>XtreemOS Linux - 2.1.1 - x86_64 DVD</volumesetid>
        <publisherid>XtreemOS</publisherid>
        <datapreparer>Mandriva BCD</datapreparer>
        <applicationid>XtreemOS Linux - 2.1.1 </applicationid>
        <copyrightid>XtreemOS Linux</copyrightid>
    </header>
    <genisoimage desc="iso generation tool">
        <options>-f -r -J -hide-rr-moved -nobak -cache-inodes -no-emul-boot -boot
        <bootcat>isolinux/boot.cat</bootcat>
    <!-- builddir and destdir will always use the workdir -->
        <builddir>build</builddir>
        <isodir>iso</isodir>
    </genisoimage>
</iso>
</productname>

```

Resume of the XtreemOS example:

- the build directory used to create the ISO will be: **/home/xtreemos/build_bcd/build/XtreemOS-2.1.1-x86_64**
- the iso directory will be: **/home/xtreemos/build_bcd/iso/XtreemOS-2.1.1-x86_64**

- ISO name will be: **XtreemOS-2.1.1-x86_64.iso**
- The chroot and logs are in **/tmp/XtreemOS-2.1.1-x86_64** directory
- all urpmq queris are stored in **/tmp/XtreemOS-2.1.1-x86_64/urpmq** directory
- previous urpmq queries were in **/var/lib/bcd/XtreemOS-2.1.1-x86_64** directory

10.3 running output

11 ISSUES

- if you want to build ISO for x86_64 you must use an x86_64 system (due to **urpmi**)
- if hdlist/synthesis are corrupted in your repository, you can't build ISO
- don't check for bad rpm