How to Remaster Fedora Core

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Agenda

- Linux History
- Linux Distributions
- How to Remaster Fedora Core?
- Conclusion
- References

Linux History

GNU History

- In 1983
- Richard Stallman
- It is free
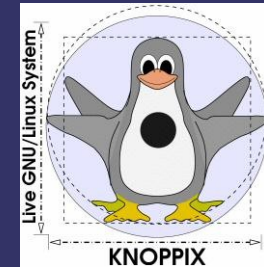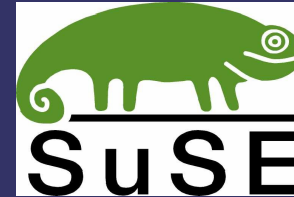 - free means freedom
- GNU's Not Unix

Linux History

- ➲ In 1991
- ➲ Linus Torvalds
- ➲ Based on Minix
- ➲ GNU/Linux

Linux Distributions

Linux Distributions

Linux Distributions Ranking

- Ubuntu
- SuSE
- Mandriva
- Fedora Core
- MEPIS
- Damn Small
- Debian

Ubuntu

- Ubuntu Linux is a complete desktop Linux operating system.
- Freely available with both community and professional support.
- The "Ubuntu" is an ancient African word, meaning "humanity to others".

SuSE

- ⮑ SUSE LINUX is the international technology leader and solutions provider in Open Source operating system software.
- ⮑ SUSE LINUX was acquired by Novell, Inc in November 2003.

Mandriva

- Mandriva Linux was created in 1998.
- The goal of making Linux easier to use for everyone.

Fedora Core

- ➔ The Fedora Project is an openly-developed project designed by Red Hat.
- ➔ The goal of The Fedora Project is to work with the Linux community to build a complete, general purpose operating system exclusively from open source software.

MEPIS

- ➲ MEPIS Linux is a desktop Linux system that is also easy to configure as a dedicated server.
- ➲ It includes cutting-edge features such as a live/installation/recovery CD and ... .

Damn Small

- Damn Small Linux is a business card size (50MB) Live CD Linux distribution.
- Despite its minuscule size it strives to have a functional and easy to use desktop.

Debian

- The Debian Project is an association of individuals who have made common cause to create a free operating system.
- Debian comes with over 8000 packages - all of it free.

What Makes Distros Different?

➲ System Installer
- Anaconda (Red Hat, Fedora and ...)
- Yast (SuSE)

➲ Package Management
- RPM (Red Hat, Fedora, SuSE and ...)
- DEB (Debian based distros)
- TGZ (Slackware based distros)

➲ Configuration System
- Yast (SuSE)
- system-config-* (Fedora)

➲ Packages

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How to Remaster Fedora Core

How to

- ➲ Step 1
  - Create a minimum system.
  - Rebuild the Anaconda.

- ➲ Step 2
  - Install Required packages.
  - Configure the system.

- ➲ Step 3
  - Create the iso file.

Step 1

Step 1

- ➲ Selecting the basic packages.
- ➲ Changing the comps.xml file.
- ➲ Changing the Anaconda logos.
- ➲ Rebuild the Anaconda.
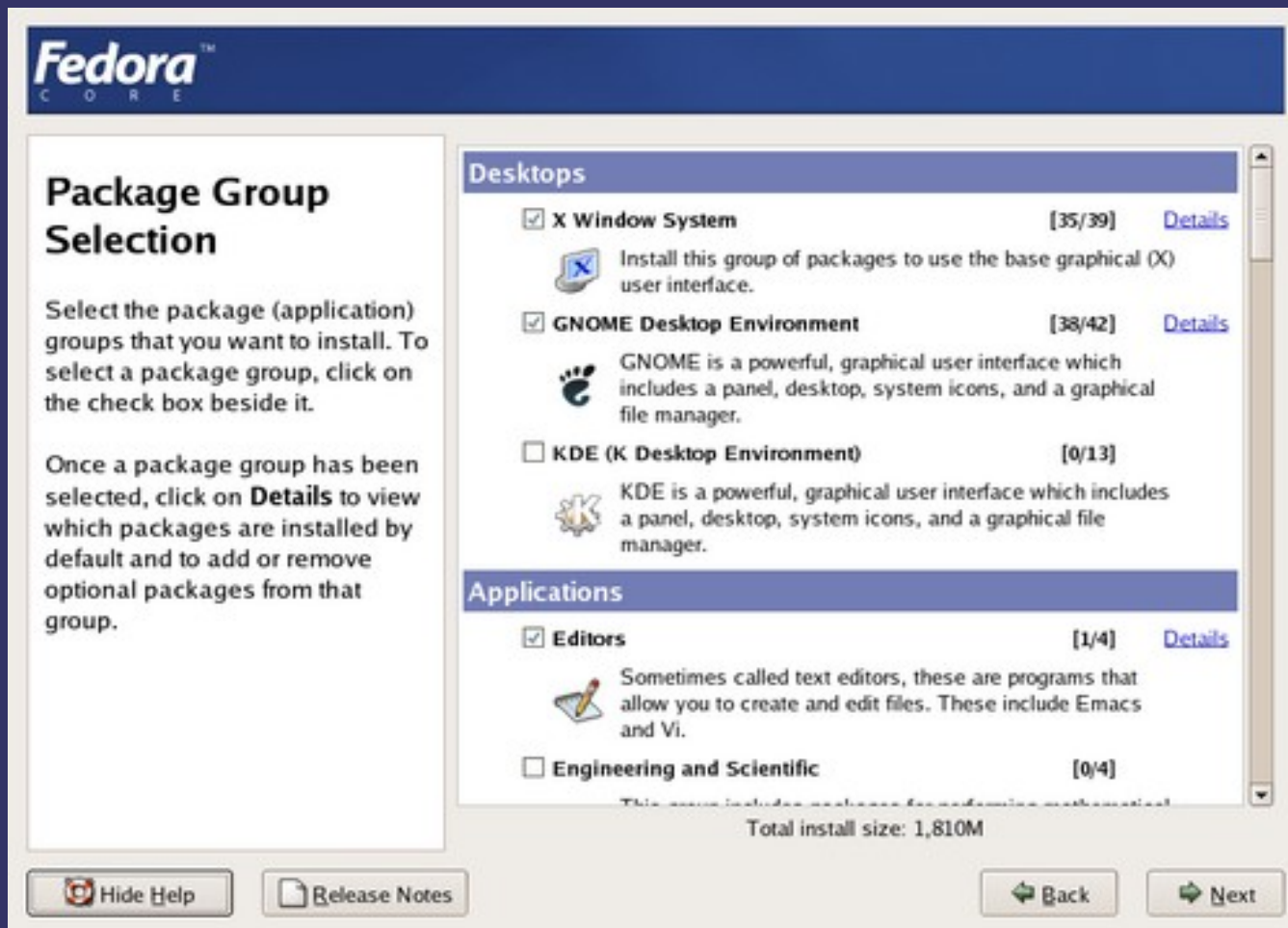
comps.xml

- ➲ The comps file defines how the packages are bundled during the installation.
- ➲ It is then broken into different sections
  - The first is the group lists
    - which describe the different groups available for selection during a Red Hat Linux installation.
  - The second section is a group hierarchy.
    - This defines an ordering of the groups by breaking them down into categories.
  - Finally, there is a section with the list of packages included and their resolved dependencies.

Anaconda – Group List

Anaconda – Detailed Group List

comps.xml – Group list

```xml
<group>
  <id>somegroup</id>
  <name>Sample Group</name>
  <default>true</default>
  <uservisible>false</uservisible>
  <description>This is a silly sample group</description>
  <packagelist>
    <packagereq type="mandatory">bash</packagereq>
    <packagereq type="default">cpio</packagereq>
  </packagelist>
</group>
```

comps.xml – Group Hierarchy

```
<grouphierarchy>
  <category>
    <name>Random Groups</name>
    <subcategories>
      <subcategory>somegroup</subcategory>
    </subcategories>
  </category>
</grouphierarchy>
```

Changing the Anaconda Logos

- ⮑ fedora-logo-<ver>.rpm
- ⮑ Download fedora-logo-<ver>.src.rpm
- ⮑ Extract it.
- ⮑ Replacing the logos.
- ⮑ Rebuild the fedora-logo rpm file:
  - • /usr/src/redhat/{BUILD,RPMS,SOURCES,SPECS,SRPMS}
  - • rpmbuild -bb /usr/src/redhat/SPECS/fedora-logo.spec

Rebuild the Anaconda

1) Preparation
2) Updating
3) Cleanup
4) Build
5) Splitting the installation tree

Preparation

- ➲ Installing necessary tools
  - anaconda
  - anaconda–help
  - anaconda–runtime
  - busybox–anaconda
- ➲ Set the environment variable
  - export PYTHONPATH=/usr/lib/anaconda
  - export PATH="$PATH:/usr/lib/anaconda–runtime"
- ➲ Copy the entire Fedora CD

Updating

➲ It consists of replacing the RPMs and src RPMs with updated versions.

Cleanup

- ➪ Removing extra files
  - find $FCBASE/fc3 –name TRANS.TBL –exec rm –f {} \;
  - find $FCBASE/fc3 –name boot.cat –exec rm –f {} \;

Build

- ➲ **Update the hdlist file**
  genhdlist productpath=DISTRO \
  $MYPATH/mydistrocd

- ➲ **Create the package order file**
  pkgorder $MYPATH/mydistrocd i386 DISTRO \
  > $MYPATH/pkgfile

- ➲ **Update the installation files**
  buildinstall pkgorder $MYPATH/mydistrocd \
  version 1 product "My Distro" \
  release "My Distro" \
  prodpath DISTRO \
  $MYPATH/mydistrocd

Splitting The Installation Tree

➲ **Split the distribution tree**
```
splittree.py −−arch=i386 \
−−total−discs=8 −−bin−discs=4
    −−src−discs=4 \
−−release−string="Fedora Core 3" \
−−pkgorderfile=$FCBASE/fc3/pkgfile \
−−distdir=$FCBASE/fc3/i386 \
−−srcdir=$FCBASE/fc3/i386/SRPMS \
−−productpath=Fedora
```

➲ **Rebuild the hdlist**
```
genhdlist −−productpath=Fedora
    −−withnumbers \
−−fileorder $MYPATH/pkgfile \
$MYPATH/mydistro-cd
```
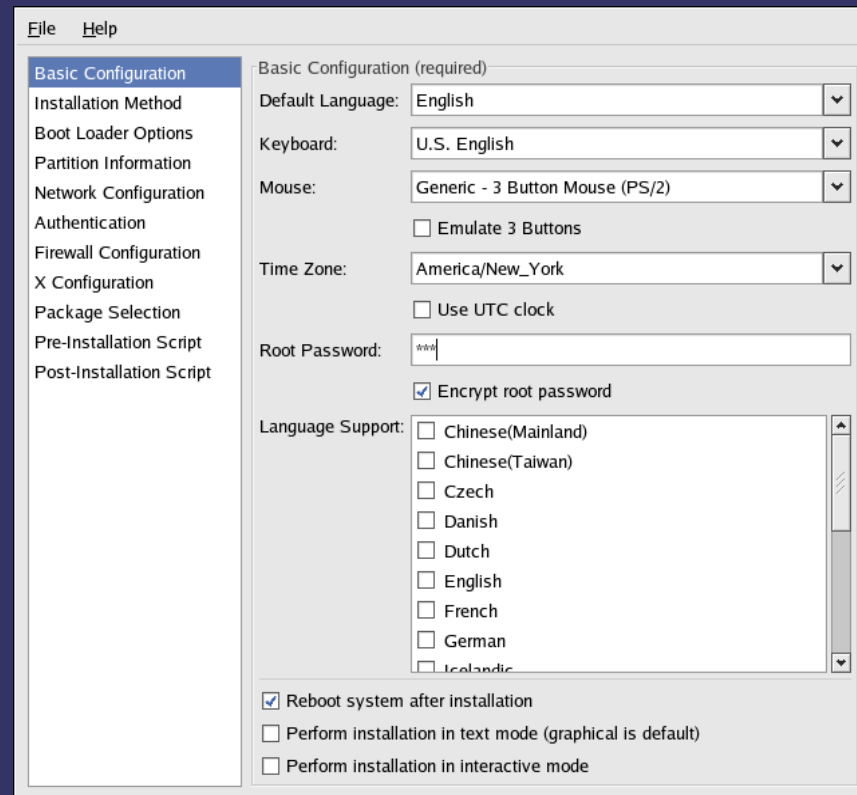
Step 2

Kickstart

➲ Using kickstart, a system administrator can create a single file containing the answers to all the questions that would normally be asked during a typical installation.

Kickstart File

- Command section
- The %packages section
- The %pre and %post sections

Starting a Kickstart Installation

➲ To begin a kickstart installation, you must boot the system from boot media you have made.

linux ks=cdrom:/ks.cfg

My Distro Kickstart Config

- ➲ Creating CD device in /dev
- ➲ Finding the correct CD drive
- ➲ Doing required configuration for my distro

Creating CD Device

```
cd_list=`cat /proc/sys/dev/cdrom/info | head -n
    3 | tail -n 1 | cut -d ":" -f2`

for dev in $cd_list
do
    major=`cat /sys/block/$dev/dev | cut -d: -f1`
    minor=`cat /sys/block/$dev/dev | cut -d: -f2`
    mknod /dev/$dev b $major $minor
done
```

Finding the Correct CD Drive

```
mkdir -p /mnt/cdrom
for dev in $cd_list
do
    mount /dev/$dev /mnt/cdrom
    if [ -d /mnt/cdrom/DISTRO ]; then
        magfa_cd=$dev
    fi
    sleep 1
    umount /mnt/cdrom
    sleep 1
done
```

Step 3

Creating The ISO File

➲ The bootable CD

```
mkisofs −R −J −T −v \
−no−emul−boot −boot−load−size 4
   −boot−info−table \
−V "My Distro" \
−b isolinux/isolinux.bin −c isolinux/boot.cat \
−x "lost+found" \
−o mydistor.iso \
$MYPATH/mydistro-cd
```
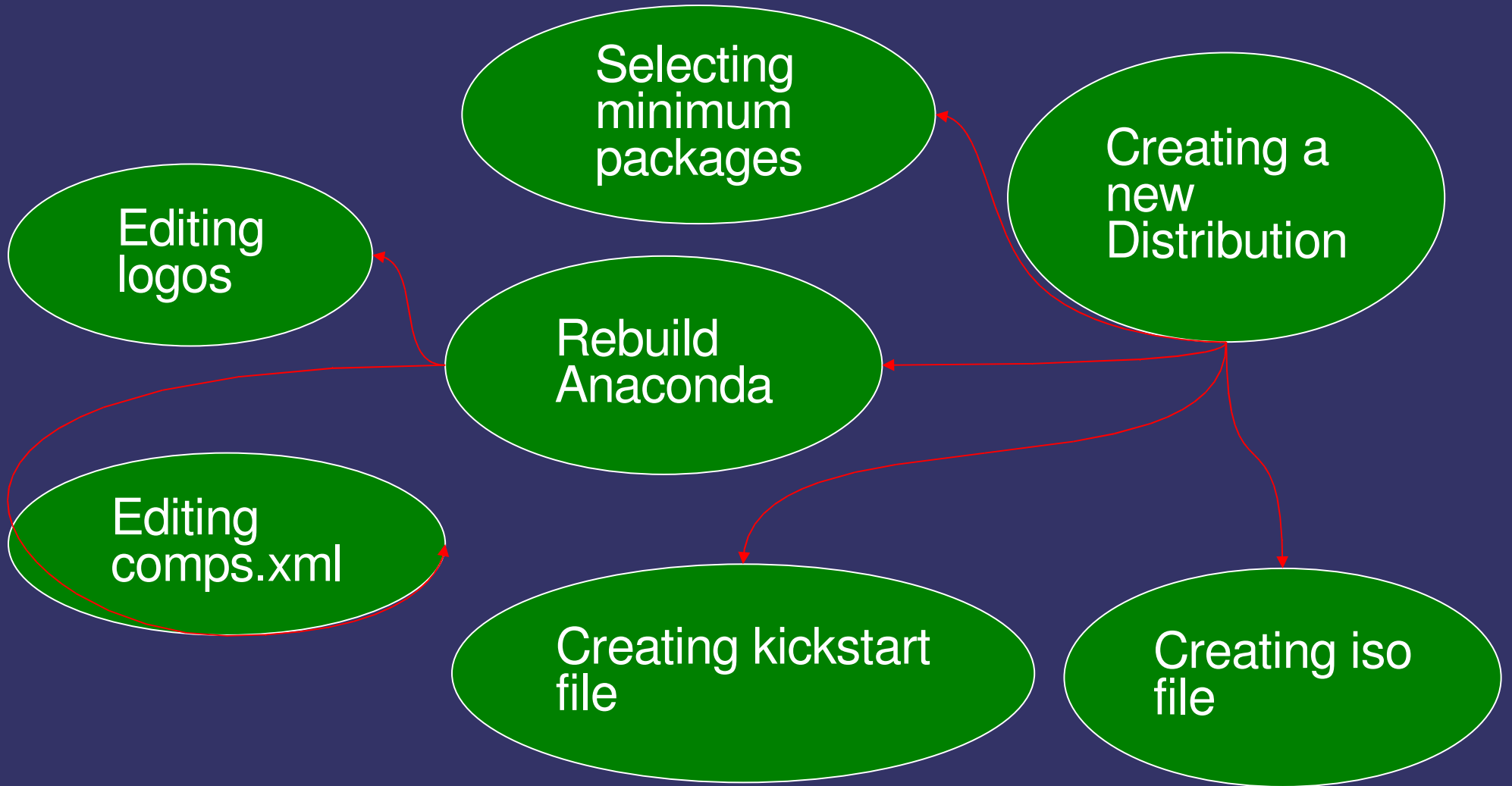
Creating The ISO File

Ⓒ Other CDs

```
mkisofs −R −J −T −v \
−V "My Distro" \
−x "lost+found" \
−o cd2.iso \
i386−disc2
```

Conclusion

Conclusion

Selecting minimum packages

Creating a new Distribution

Editing logos

Rebuild Anaconda

Editing comps.xml

Creating kickstart file

Creating iso file

References

Refernces

- http://www.redhat.com
- http://fedoraproject.org/wiki/Anaconda
- http://vn-x.com
- http://blagblagblag.com
- http://rhlinux.redhat.com/anaconda

Questions

Comments