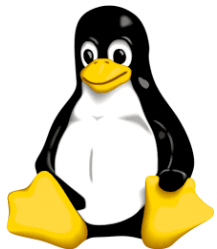


Déployer un environnement de systèmes Linux ? Mais c'est très simple ! (*)

(*) En hommage à E. Aisberg



Alain Ninane

LS / SGSI / SICM

Lignes de conduite de l'exposé

- Linux – Unix
- Choix de la distribution Red Hat
- Installation d'un système RHEL
- Déploiement par Kickstart
- Le processus d'installation
- La maintenance des systèmes
- Conclusion

Linux – Unix

Les concepts de base
De quoi parle t'on ?

Linux – Une définition ...

- C'est un système d'exploitation
 - Logiciel libre basé sur la licence GPL
 - Projet initié par Linus Torvalds en 1991
 - Développé par une "Communauté Libre" de développeurs libres dans le monde
 - Basé sur, ou plutôt est, une version libre du système d'exploitation UNIX

Unix® – Une définition ... (1)

- C'est un système d'exploitation
 - Projet initié par Bell Labs (Ken Thompson & Dennis Ritchie)
 - UNICS (Septembre 1969)
 - UNIX Time-Sharing System (Novembre 1971)
 - Longue histoire ... [[Généalogie UNIX](#)]
 - Propriétaire (après Bell, AT&T et Novell):
 - Spécifs & Marque: X/Open Company -> Open Group
 - Source: Santa Cruz Operation (SCO)

Unix ® – Une définition ... (2)

- C'est un système d'exploitation
 - Multi-tâches
 - Multi-utilisateurs
 - Multi-sessions
 - Intégration des protocoles réseaux standards
 - Accès à distance [[ssh -> cern.ch](#)]
 - Qualité de service professionnel
 - Fail-over, sécurité, ...
 - Supporté par les vendeurs de matériel
 - IBM -> AIX SUN -> SOLARIS
 - DEC -> ULTRIX -> OSF1 -> Compaq Tru 64
 - Apple -> MacOS X (version BSD de UNIX)

Linux ... pour tous les goûts

- Linux est diffusé sous forme de "distros"
 - Principales (classiques – usage général – Intel)
 - Caldera, Debian, Mandrake, Red Hat, Suse, ...
 - Plates-formes alternatives
 - Yellow Dog Linux, Linux/m68k, UltraPenguin, ...
 - Spécialisée
 - Linux CE, KhaOS Linux, ...
 - Internationales
 - Conectiva, Laser 5, ...
 - Petites distribution (live CD, usb)
 - Knoppix, Damn Small Linux, Puppy Linux, ...

Distributions Linux

- Les distributions se différencient par
 - Les logiciels (packages) inclus
 - Apache, MySQL, OpenOffice, ...
 - L'interface graphique de base
 - KDE, GNOME, XFCE, AFTERSTEP, ...
 - Les langues supportées
 - Les méthodes d'installation
 - Graphiques, textes, réseau, vnc, ...
 - Les outils de gestion des logiciels (packages)
 - apt, yum, rpm, ...

Choix de la *distribution Red Hat*

Pourquoi ? Evolution ...

Red Hat – choix FYNU (1998)

- Version 5.1 (Nom de code Manhattan)
- Une des plus populaire d'un point de vue marketing
- Disponible dans le commerce
 - CDs, docs, support ... (libre ≠ gratuit !)
- Certifiée et utilisée par les autres grands centres de physique, partenaires de nos programmes de recherches
 - CERN (Genève), FERMILAB (Chicago), ...

Histoire Red Hat Linux

- RedHat 1.0 (Mother's Day), November 3, 1994
- RedHat 1.1 (Mother's Day+0.1), August 1, 1995
- RedHat 2.0, September 20, 1995
- RedHat 2.1, November 23, 1995
- RedHat 3.0.3 (Picasso), May 1, 1996
- RedHat 4.0 (Colgate), October 8, 1996
- RedHat 4.1 (Vanderbilt), February 3, 1997
- RedHat 4.2 (Biltmore), May 19, 1997
- RedHat 5.0 (Hurricane), December 1, 1997
- **RedHat 5.1 (Manhattan), May 22, 1998**
- RedHat 5.2 (Apollo), November 2, 1998
- RedHat 6.0 (Hedwig), April 26, 1999
- RedHat 6.1 (Cartman), October 4, 1999
- **RedHat 6.2 (Zoot), April 3, 2000**
- RedHat 7 (Guinness), September 25, 2000
- **RedHat 7.1 (Seawolf), April 16, 2001**
- RedHat 7.2 (Enigma), October 22, 2001
- **RedHat 7.3 (Valhalla), May 6, 2002**
- RedHat Enterprise Edition 2.1 AS (Pensacola), May 6 2002
- RedHat 8.0 (Psyche), September 30, 2002
- RedHat 9 (Shrike), March 31, 2003

Evolution Red Hat Linux – 2003

- Red Hat décide de se concentrer sur une version commerciale à destination des entreprises
 - RHEL – Red Hat Enterprise Linux
- Projet “Communauté Libre” devient
 - FC – Fedora Core
 - “Sponsorisé” par Red Hat

Distribution Professionnelle ?

- Cycle d'évolution du produit garanti
- Durée de support garantie
- Validée, certifiée et supportée par les vendeurs de matériel
 - DELL, SUN, IBM, HP, ...
- Outils de maintenance évolués

FC versus RHEL (1)

- FC et RHEL sont des “open softwares”
 - Sources disponibles e.g. sur <ftp.belnet.be>
- Obtention des media d'installation
 - Fedora Core (4 CDs) **gratuit**
 - Images iso via le net, packages individuels, ...
 - Enterprise Linux (4 CDs) **payant**
 - Images iso via le net (accès restreint)
 - CDs distribués par un vendeur (RH, DELL, ...)
 - FC et RHEL
 - CD simplifié pour installation via réseau

Open source vs Payant ?

- Open Source ne signifie pas nécessairement gratuit !
- Accès aux sources est libre
 - Possibilité de recompiler ces sources et même de les modifier
 - Exemple: Scientific Linux CERN 3
- Payant ---> Vous avez droit à du support et de la maintenance

FC versus RHEL (2)

- Coût
 - Fedora Core : gratuit
 - Enterprise Linux : 50 USD / serveur / an
- Support
 - Fedora Core : “communauté libre”, internet, google, ...
 - Enterprise Linux : professionnel avec hotline, SLA, ...
- Maintenance
 - Fedora Core : automatique ou manuelle (yum)
 - Enterprise Linux : Red Hat Network

FC versus RHEL (3)

- Cycle de développement
 - Fedora Core : 4 à 6 mois
 - Enterprise Linux : 18 mois
- Durée de la maintenance
 - Fedora Core : 2 à 3 mois après nouvelle release
 - Enterprise Linux : 7 ans
- Fedora Legacy Project
 - Projet communauté libre
 - Maintenance de Red Hat 7.3, Red Hat 9, Fedora Core 1 et Fedora Core 2

Et à l'UCL ? Pourquoi pas ...

- Environnement de déploiement UCL
 - Enterprise Linux : serveurs, ...
 - Fedora Core : clusters de calculs, salles didactiques, postes de consultation, bornes publiques, ...
- Distribution Enterprise UCL ?
 - Recompilation des sources RHEL
 - Pré-configurée (e.g. certificats ssl ucl)

Installation d'un système

Exemple d'un système Enterprise Linux

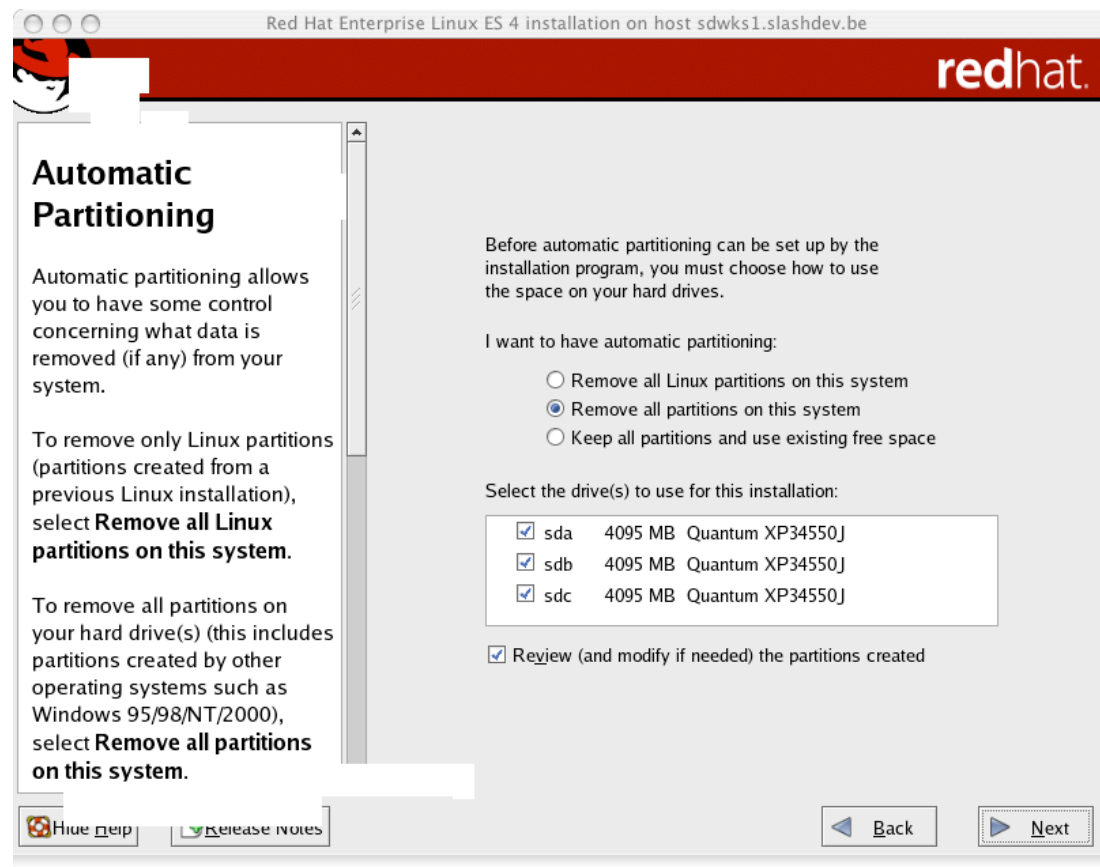
Installation simple

- Depuis les CDs de distributions
 - Boot depuis le CD numéro 1 ...
- Depuis un CD d'installation
 - Installation réseau (depuis un serveur)
 - Protocoles HTTP, FTP, NFS
 - Installation via images iso sur disques locaux

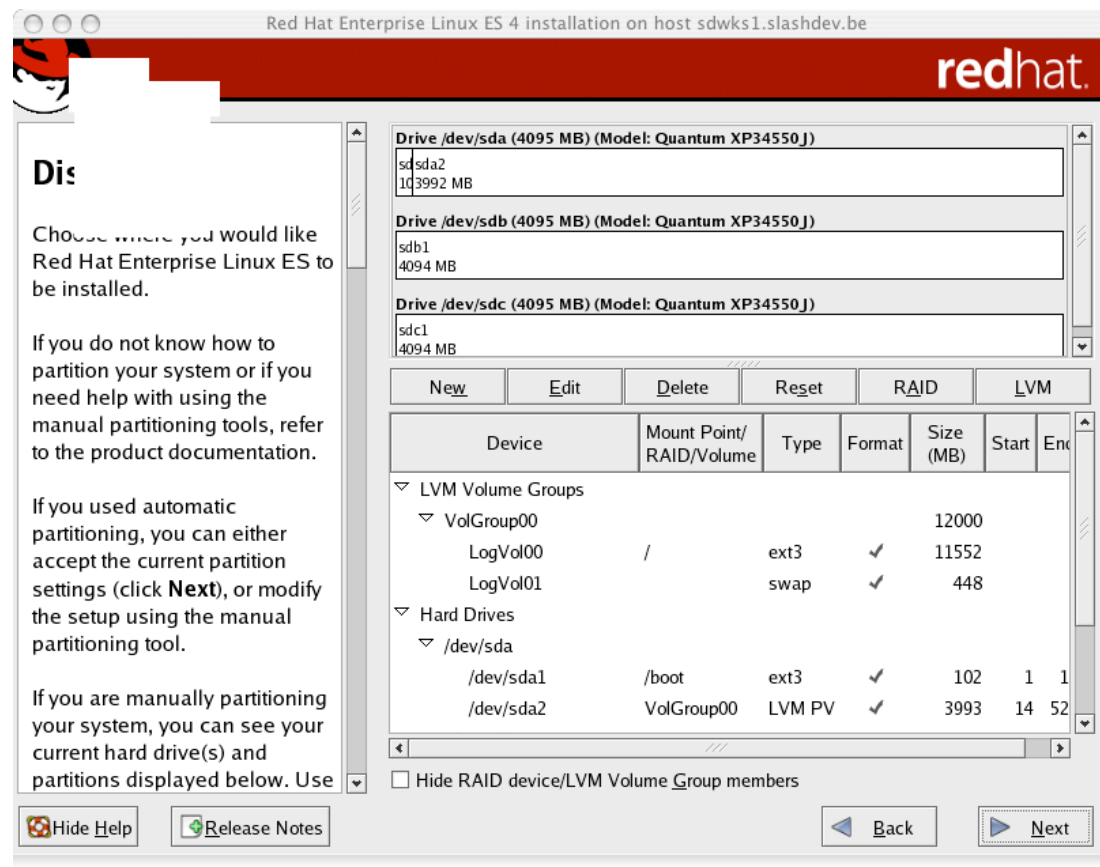
Install RHEL4 - 01/15 - Intro



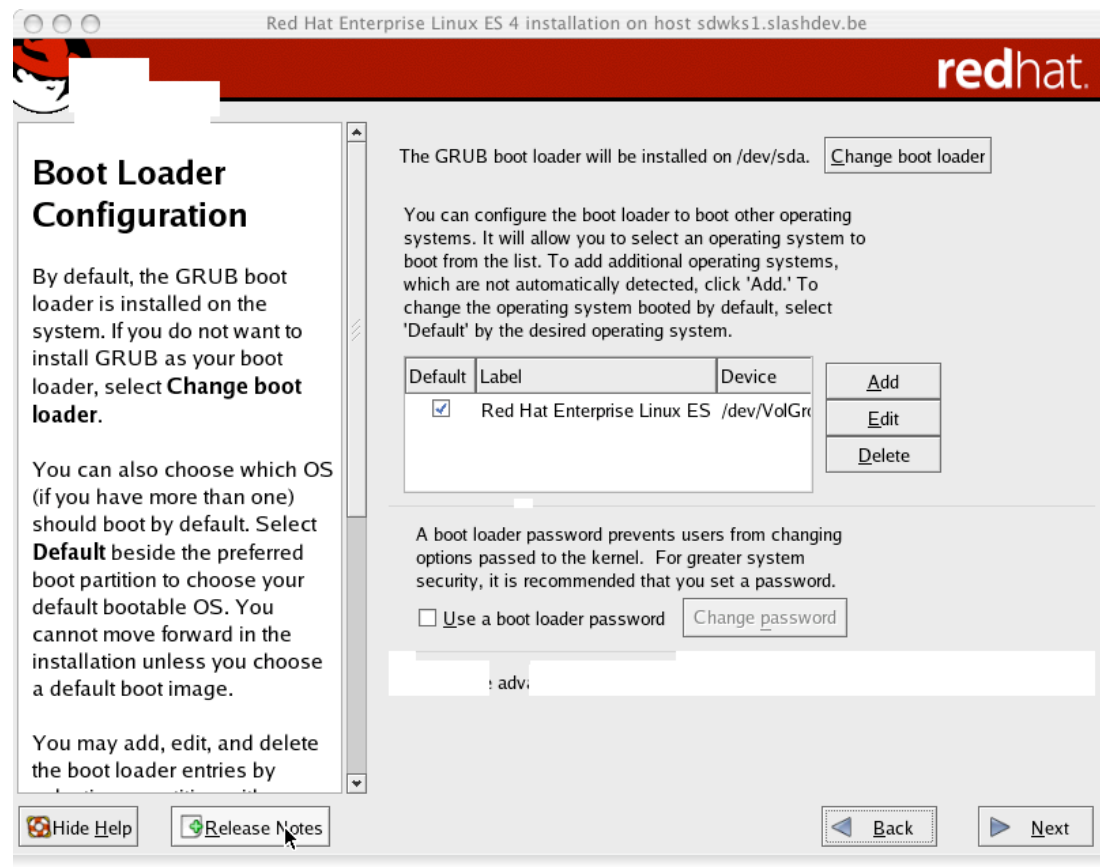
Install RHEL4 - 02/15- Disques



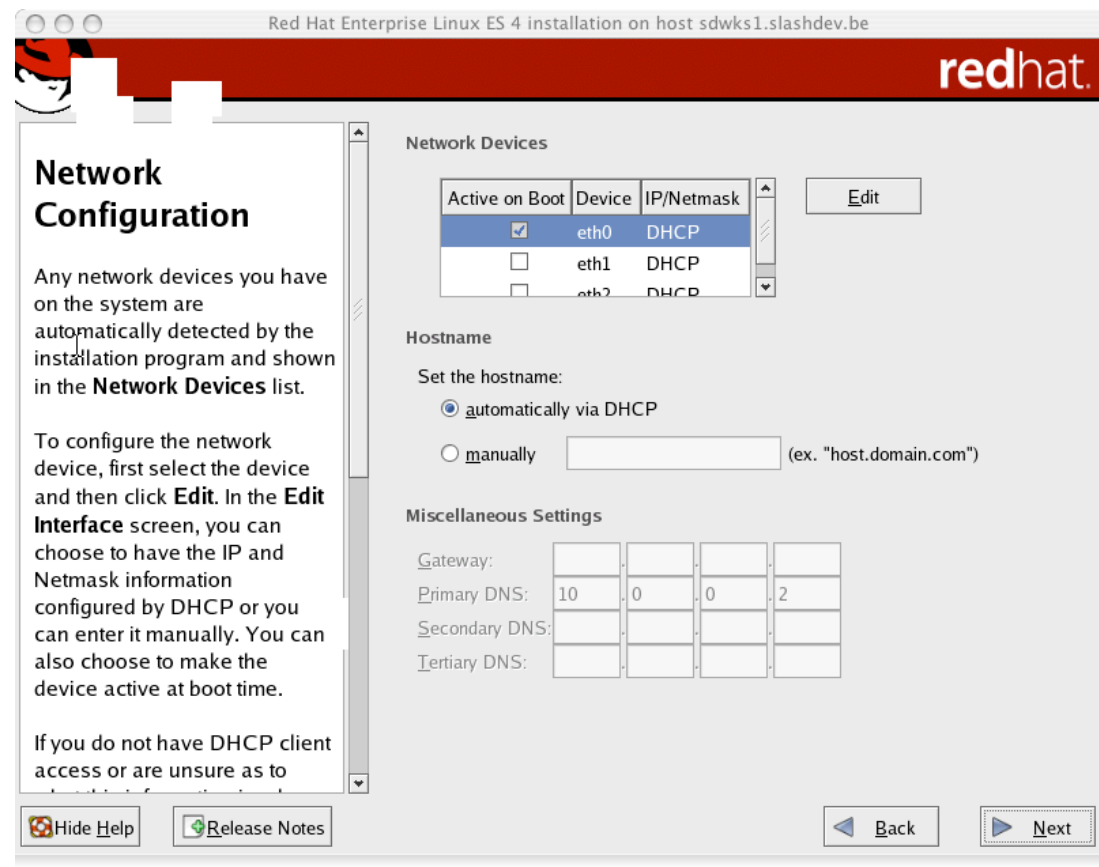
Install RHEL4 - 03/15 - Partitions



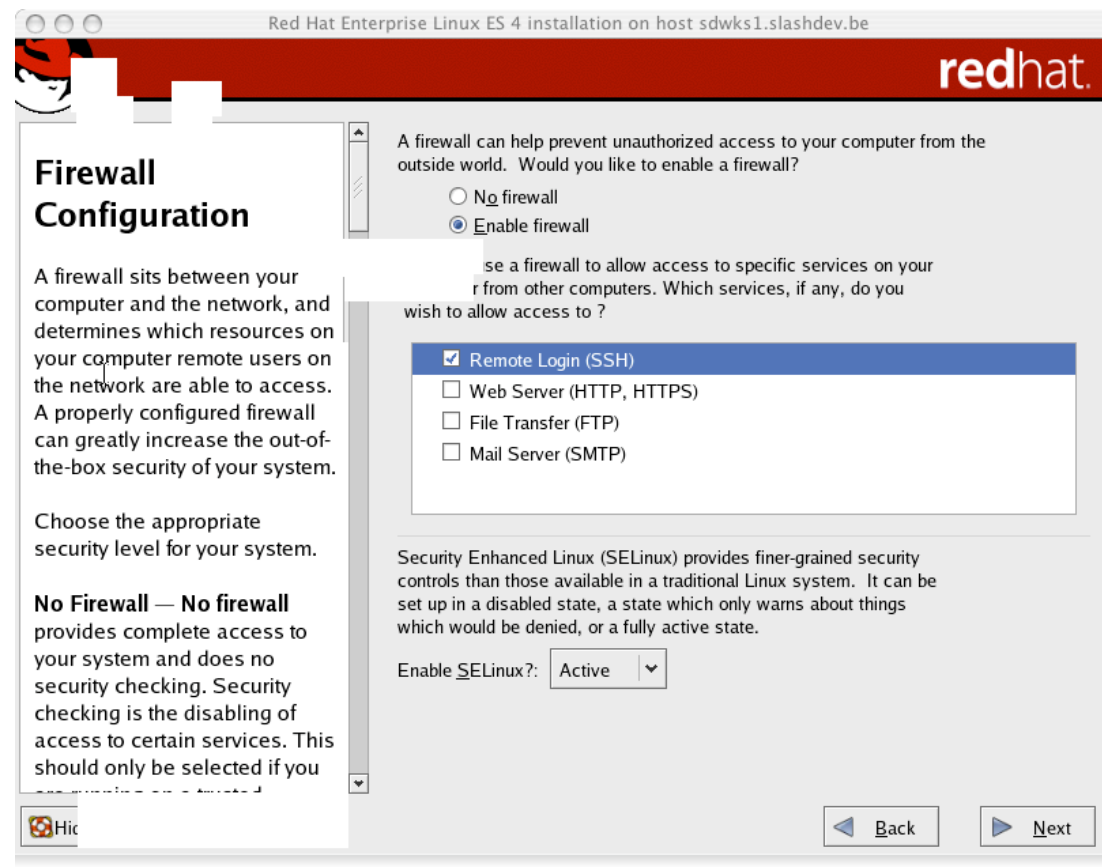
Install RHEL4 - 04/15 - Boot



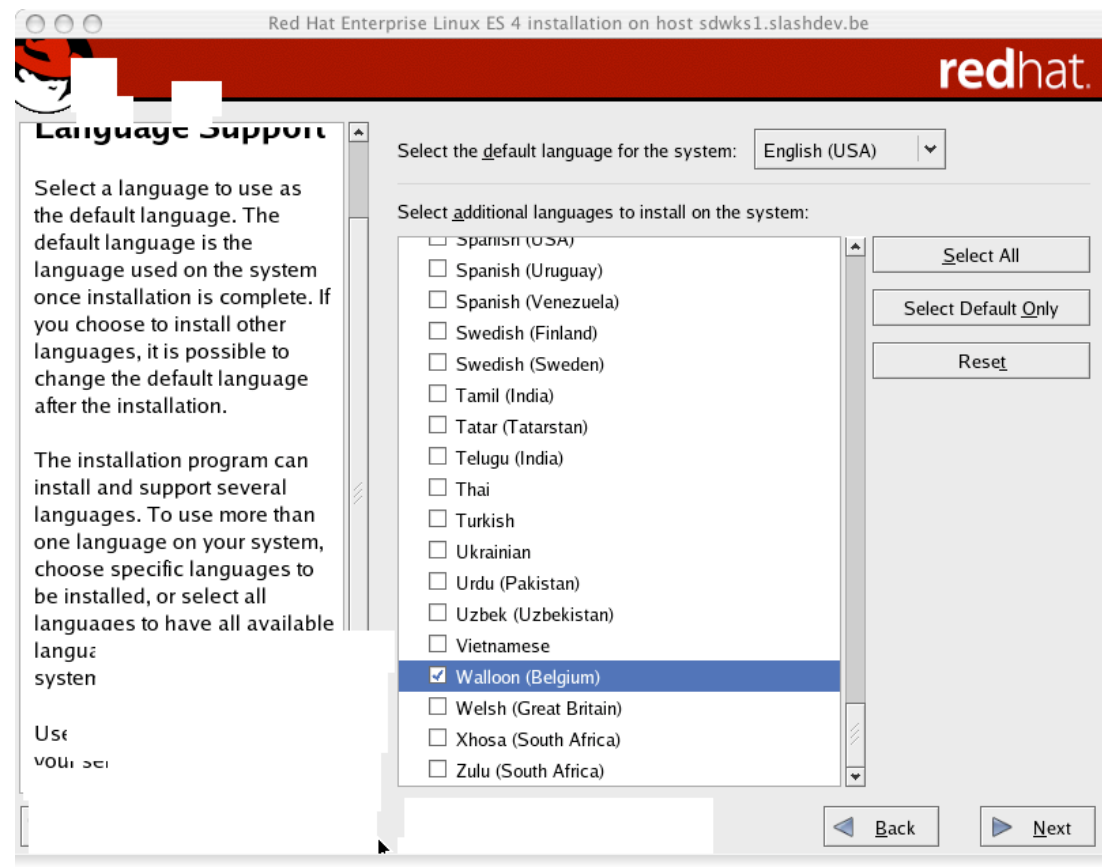
Install RHEL4 - 05/15 - Réseau



Install RHEL4 - 06/15 - Sécurité



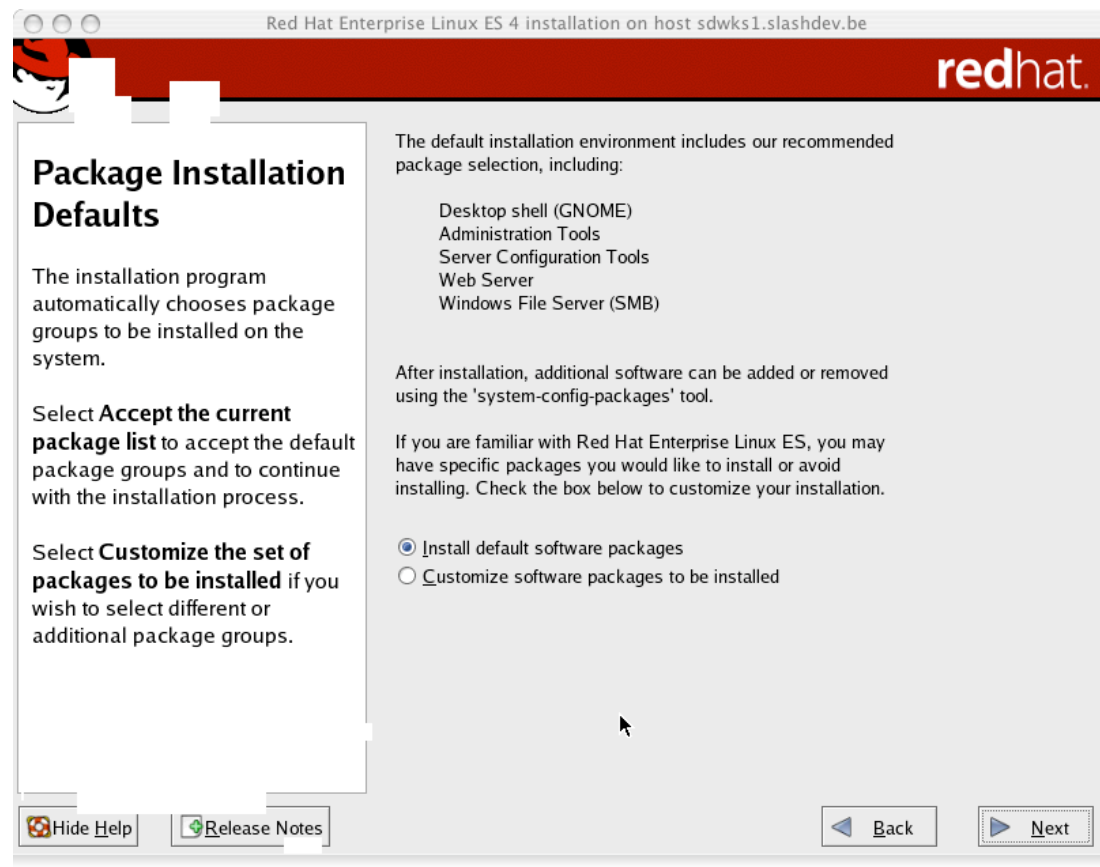
Install RHEL4 - 07/15- Langues



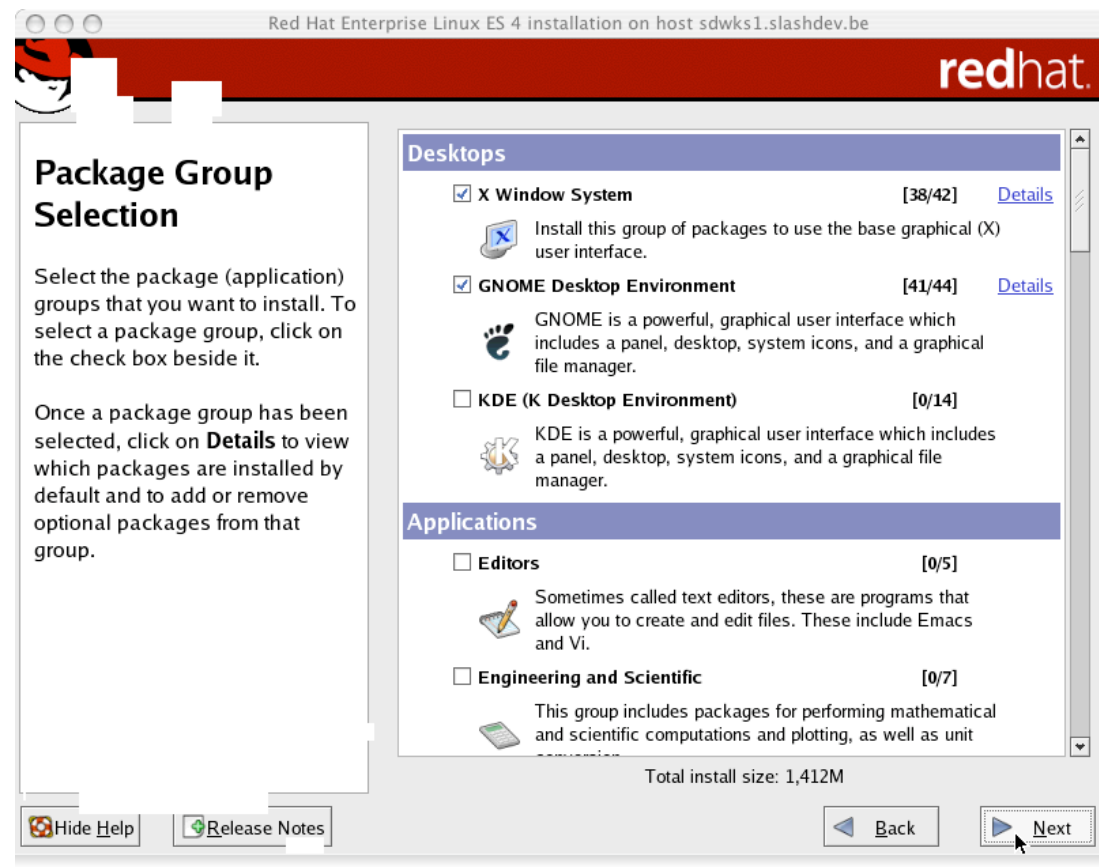
Install RHEL4 - 08/15 - Horloge



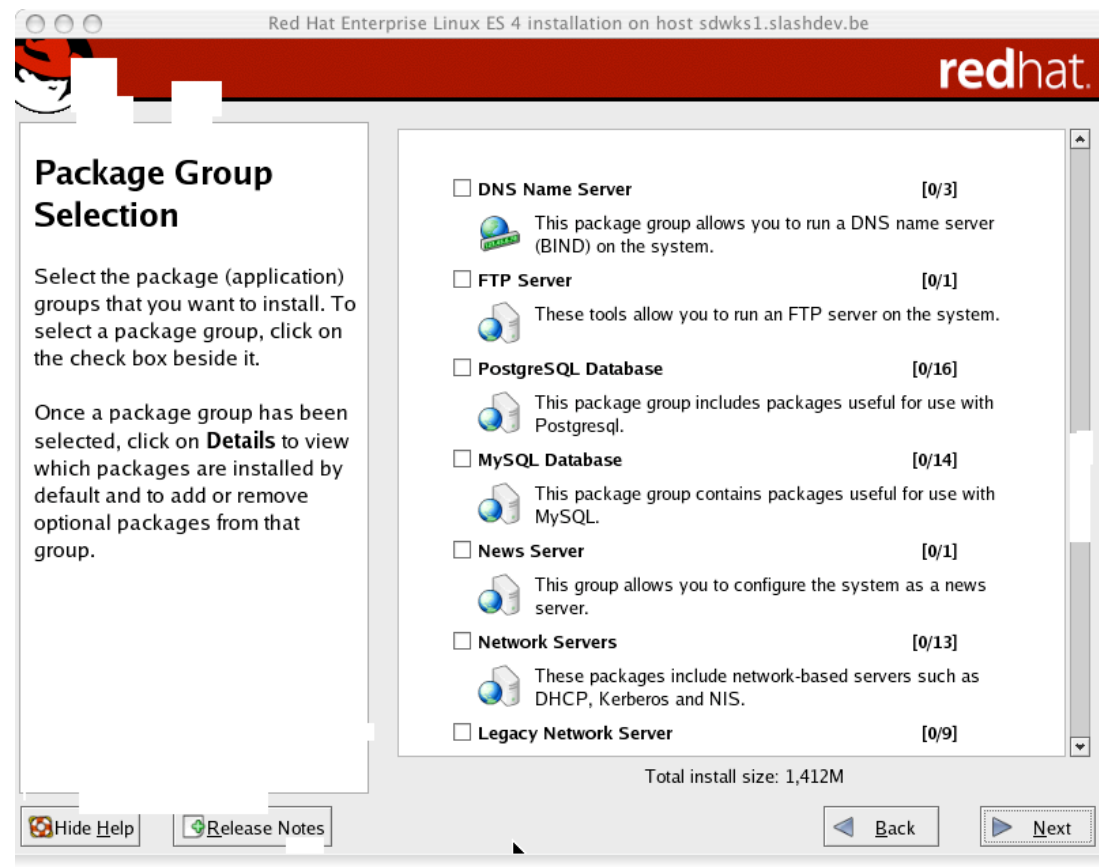
Install RHEL4 - 09/15 - Install



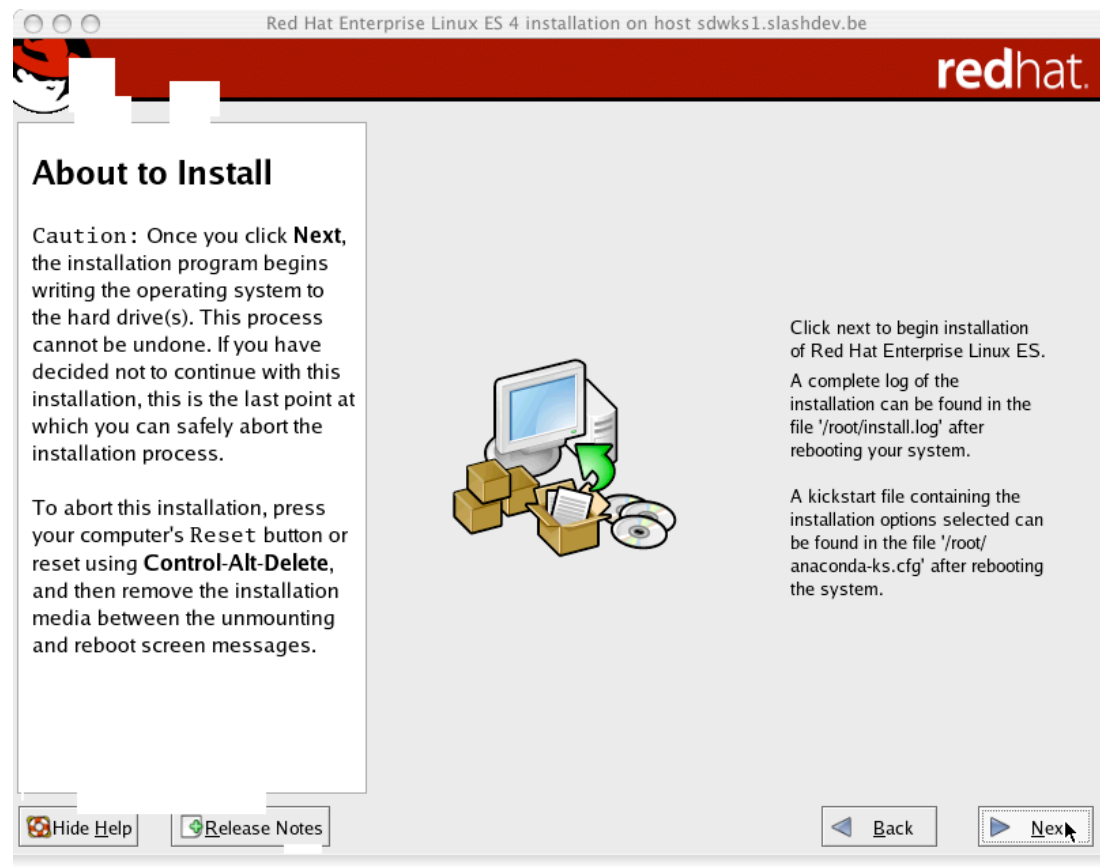
Install RHEL4 - 10/15 - Packages



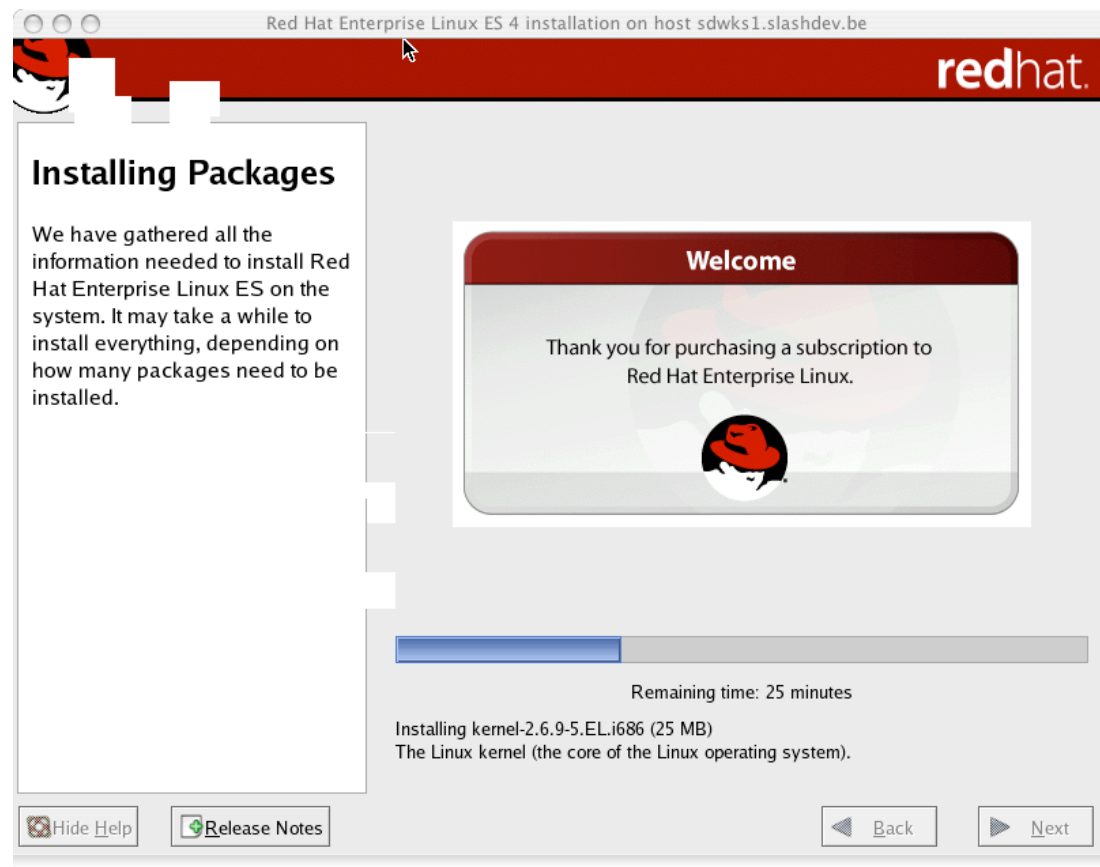
Install RHEL4 - 11/15 - Packages



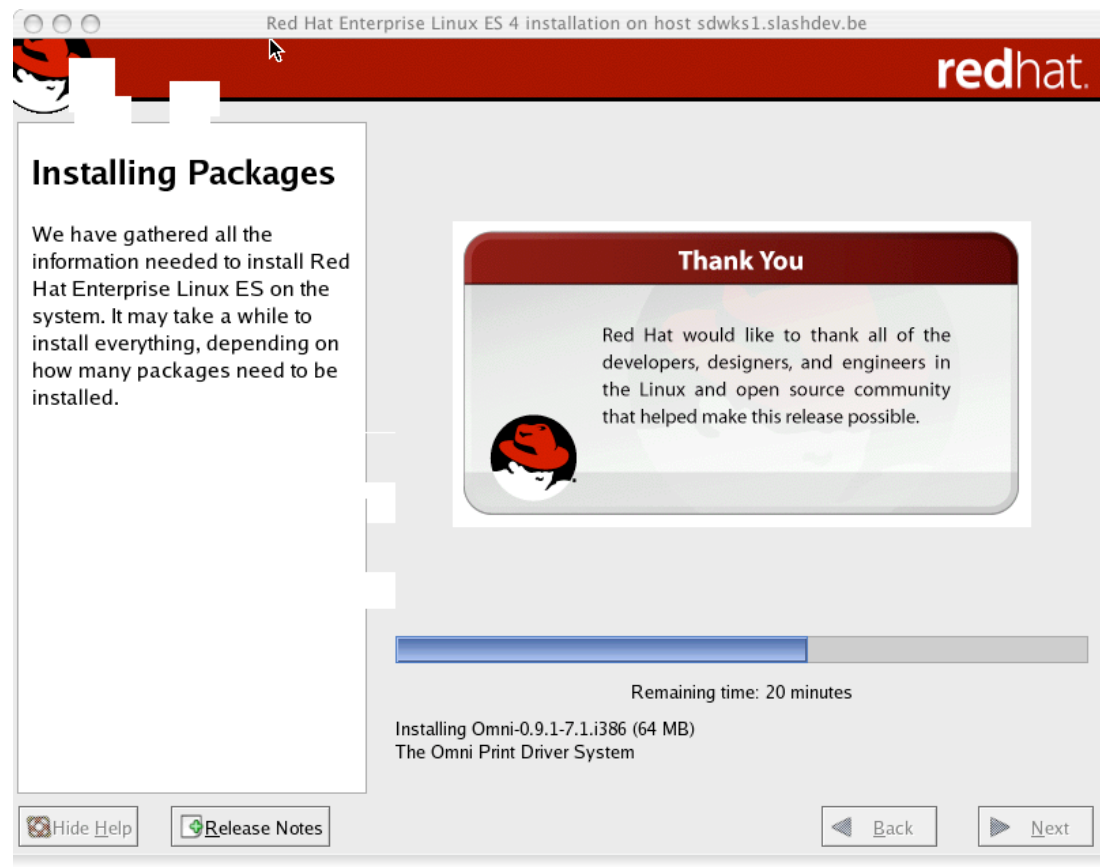
Install RHEL4 - 12/15 - Ready



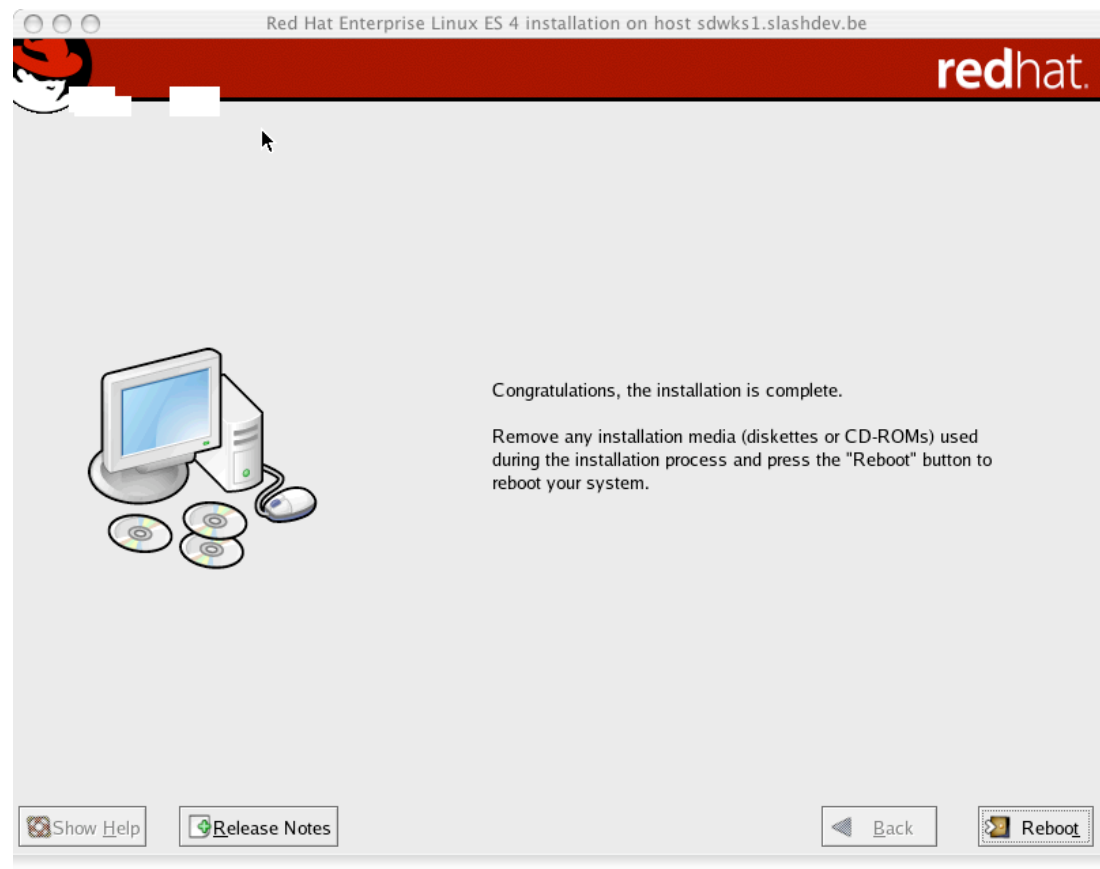
Install RHEL4 - 13/15 - Ready



Install RHEL4 - 14/15 - Ready



Install RHEL4 - 15/15 - Ready



Déploiement par Kickstart

Mécanisme Kickstart

- L'installation de FC ou RHEL est effectué par le processus anaconda
- Les réponses aux questions sont stockées par anaconda dans un fichier
 - [/root/anaconda-ks.cfg](#)
- Ce fichier *réponse* peut être utilisé pour réinstaller/*cloner* le système

Structure d'un fichier Kickstart

1. Configuration de base
2. Partitions disques
3. Logiciels et packages à installer
4. Scripts supplémentaires
 - Pre - exec. avant l'installation
 - Post - exec. après l'installation

Anaconda-ks.cfg (I)

```
install  
cdrom
```

```
lang en_US.UTF-8  
langsupport --default=en_US.UTF-8 en_US.UTF-8 wa_BE.UTF-8  
keyboard us
```

```
xconfig --card "S3 Trio64 (generic)" --videoram 1024 --hsync 30-54 --vsync 50-90 \  
--resolution 800x600 --depth 16 --startxonboot --defaultdesktop gnome
```

```
network --device eth0 --bootproto dhcp
```

```
rootpw --iscrypted $1$EFQ8Ds7O..... vRE5yjfB1  
firewall --enabled --port=22:tcp  
selinux --enforcing
```

```
authconfig --enablesshadow --enablemd5
```

```
timezone --utc Europe/Brussels  
bootloader --location=mbr --append="rhgb quiet"
```

Anaconda-ks.cfg (II)

```
# The following is the partition information you requested
# Note that any partitions you deleted are not expressed
# here so unless you clear all partitions first, this is
# not guaranteed to work
#clearpart --all --drives=sda,sdb,sdc
#part /boot --fstype "ext3" --size=100 --ondisk=sda
#part pv.9 --size=0 --grow --ondisk=sdb
#part pv.8 --size=0 --grow --ondisk=sda
#part pv.10 --size=0 --grow --ondisk=sdc
#volgroup VolGroup00 --pesize=32768 pv.9 pv.8 pv.10
#logvol swap --fstype swap --name=LogVol01 --vgname=VolGroup00 --size=224 \
--grow --maxsize=448
#logvol / --fstype ext3 --name=LogVol00 --vgname=VolGroup00 --size=1024 --grow
```


Anaconda-ks.cfg (III)

```
%packages
@ admin-tools
@ text-internet
@ gnome-desktop
@ dialup
@ base-x
@ printing
@ server-cfg
lvm2
grub
kernel-smp
e2fsprogs
```

Anaconda-ks.cfg (IV)

%post

Fichier Kickstart – Observations

1. La partie “hardware” est minimale
 - Carte graphique
 - Partitions disques
 - hdx si disques IDE
 - sdx si disques SCSI ou SATA
 - Nombres de disques ...
2. Simples fichiers textes éditables
3. La partie %post est vide

Pre / Post Configuration

- %pre
 - S'exécute avant l'installation
 - Sauvegarde de données, clefs ssh, ...
- %post
 - S'exécute après l'installation
 - Compléter des configurations
 - Intégrer le système dans un parc

Fichier Kickstart – Utilisation (1)

- Pour réinstaller ou cloner le système, le fichier Kickstart doit être disponible ...
 - Disquette ou CDROM ---> argument d'install
 - linux ks=floppy
 - linux ks=cdrom:/ks.cfg
 - Sur un serveur en réseau
 - Dhcp: linux ks
 - Configuration répertoire dans serveur dhcp
 - Fichier Kickstart: /.../130.104.xxx.yyy-kickstart
 - Http: linux ks=http://lx02.sicm.../pub/ks/lxopac01.ks

Fichier Kickstart – Organisation

- Fichiers Kickstart “spécialisés” par type des postes
 - Serveurs de mails, postes de consultation, ...
- Fichiers Kickstart peuvent être construits à partir d’une config. locale existante
 - Ajout de scripts %pre et/ou %post
- Fichiers Kickstart peuvent être centralisés
 - Par exemple ...
 - `/afs/cern.ch/project/linux/redhat/kickstart/cfg`

Exemple de Kickstart: OPAC BGSH

- OPAC – One Public Access Catalog
 - Poste de consultation en bibliothèque
- Fichiers Kickstart sur un serveur
 - lx02.sicm.ucl.ac.be
 - /disks/share/linux/ks
 - lxopac01.bgsh.ucl.ac.be
 - lxopac02.bgsh.ucl.ac.be

Différence entre 2 systèmes

```
nina(lx02) - diff lxopac01.bgsh... lxopac02.bgsh ...
```

```
8c8
```

```
< xconfig --card "S3 Trio64 (generic)" --videoram 2048 --hsync 30-92 --vsync 50-150 \  
    --resolution 800x600 --depth 16 --startxonboot --defaultdesktop gnome
```

```
---
```

```
> xconfig --card "Intel 810" --videoram 16384 --hsync 31-92 --vsync 50-150 \  
    --resolution 800x600 --depth 16 --startxonboot --defaultdesktop gnome
```

```
10c10
```

```
< network --device eth0 --bootproto dhcp --hostname=lxopac01.bgsh.ucl.ac.be
```

```
---
```

```
> network --device eth0 --bootproto dhcp --hostname=lxopac02.bgsh.ucl.ac.be
```


Kickstart – lxopac01 (I)

install

url --url <http://130.104.201.8/pub/fedora/linux/core/3/i386/os>

lang en_US.UTF-8 langsupport --default=en_US.UTF-8 en_US.UTF-8 fr_BE.UTF-8

keyboard be-latin1

xconfig --card "S3 Trio64 (generic)" --videoram 2048 --hsync 30-92 --vsync 50-150 --resolution 800x600 `--depth 16 --startxonboot --defaultdesktop gnome

network --device eth0 --bootproto dhcp --hostname=lxopac01.bgsh.ucl.ac.be

firewall --enabled --port=22:tcp

selinux --enforcing

timezone --utc Europe/Brussels

rootpw --iscrypted \$1\$MzXHj/..... VCzf/

authconfig --enablesshadow --enablemd5

bootloader --location=mbr --md5pass=\$1\$.....mcY0

reboot

Kickstart – lxopac01 (II)

```
clearpart --linux  
part /boot --fstype ext3 --size=128  
part swap --size=256  
part / --fstype ext3 --size=1 --grow
```

Kickstart – lxopac01 (III)

```
%packages
@ gnome-desktop
@ dialup
@ base-x
@ printing
@ french-support
@ graphical-internet
kernel
e2fsprogs
grub
curl
openmotif
xorg-x11-deprecated-libs
xfwm4
xfce-utils
net-snmp
```

Kickstart – lxopac01 (IV)

```
%post
# Redirect the output to a log file
exec > /root/install-post.log 2>&1
export BOOTUP=verbose                # get rid of ANSI escape codes

# Display the output on the seventh console
tail -f /root/install-post.log >/dev/tty7 &

# Performs post-install from list of scripts
POSTKS="ntp.ks root.ks sendmail.ks services.ks snmp.ks sshd.ks grub.ks \
sysdep-opac.ks syslog.ks users.ks yum.ks"
echo $POSTKS | tr ' ' '\n' | xargs --verbose -iH \
curl --silent http://130.104.201.8/pub/ks.scripts/H | /bin/bash
```

Kickstart – Post-installation

- Utilisation de la post-installation
 - Config. de services: `ntp.ks`, `sendmail.ks`, ...
 - Config. de users: `users.ks`, `root.ks`, ...
 - Config. spécifique d'un poste dans une catégorie: `sysdep-opac.ks`
- Scripts "bash" élémentaires

Ks - lxopac01 - ntp.ks

```
# Ntp setup
set -x
cp -p /etc/ntp.conf /etc/ntp.conf.bak
cat > /etc/ntp.conf <<-ENDntp
    server 193.190.198.10
    server 17.72.133.54
    authenticate no
    driftfile /var/lib/ntp/drift
    ENDntp
chkconfig --level 345 ntpd on
ntpdate 193.190.198.10
```

Ks - lxopac01 - sendmail.ks

```
# Configure host as a nullclient
set -x
cp -p /etc/mail/sendmail.mc /etc/mail/sendmail.mc.bak
cat > /etc/mail/sendmail.mc <<-ENDmail
divert(-1)dnl
include(\`/usr/share/sendmail-cf/m4/cf.m4')dnl
VERSIONID(\`setup for Red Hat Linux')dnl
OSTYPE(\`linux')dnl
FEATURE(nullclient, \`smtp.dynsipr.ucl.ac.be')
dnl MASQUERADE_AS(\`sicm.ucl.ac.be')dnl
ENDmail
```

Ks - lxopac01 - users.ks

```
# Create users
set -x
useradd -c 'Alain NINANE' -p '$1$.....8zgF18wst9tFtiU.' nina
useradd -c 'Gustaaf DEBEUCKELAER' -p '$1$26n99lVt$.....klJ2wOrAlA/' staf
useradd -c 'BGSH public account' -p '$1$46sBSU2l$UG.RhlwGA.....xH/' opaibgsh_01

su - opaibgsh_01 -c '
cat > .Xclients <<-ENDXclients
#!/bin/bash
# (c) 2000-2004 Red Hat, Inc.

WM="startxfce4"
WMPATH="/usr/bin /usr/X11R6/bin /usr/local/bin"

for p in \ $WMPATH ; do
    [ -x \ $p/\ $WM ] && exec \ $p/\ $WM
done

exit 1
ENDXclients
chmod +x .Xclients'
```


Ks - lxopac01 - root.ks

```
# Root access configuration from master server
```

```
set -x
```

```
# Ssh root key setup for ssh protocol 2
```

```
mkdir -p /root/.ssh
```

```
cat >> /root/.ssh/authorized_keys2 <<-ENDauth2
```

```
ssh-dss AAAAB3NzaC1kc3MAAACBAL4H6tEf5GnAru/cIzXe3VjLL5dKpaNJWqRSgf5PYXstTn00b2ta  
6ePi9Q6aThArj+cWmqMt5CI3QrNauVR/GoKg3zMTTQRpzIDofRddJ7jwKmwLSiQgs3kihFOayQlORtc  
3tl35TaLXcNro33VTNCAxwSqSOhGGfVoCgLBHAezAAAAFQCt5mzhB9mRKi+gGfu9e3Nt402SCwAAAIAN  
b+PQDIV6MX7IOWEodRb3ZJY8Q9skJ2ozn/Tudh60BkDgmnaH65zIjMgfJ9mLTobYmyXU0xpEjBBQr9qj  
bkxGE/+kWYLYAmhU/OD4EROvnioJ/iOHeQ4iFHYVIgRyKZ+Lzo6k22GVE/37+btcHa8MWUwvqOOctGWH  
DBQPTCNfwwAAAIA/yLcnAHhyonrOA14KKmGuNbgKG9OFd16vNFoMp7kiJZvrnHM99+kzQXlXZeq+dCcD  
v/+COYXAUhIvN2LtGPaeKWoshUopmJvnpIp5Qp/XPWMWtYZenVklWfFP3812ApZ8cPhCKssYnbcTKX63  
fZl6Z90Jf+1K0tgLvuwcz+yJhg== root@lx02.sicm.ucl.ac.be
```

```
ENDauth2
```

```
chmod 700 /root/.ssh
```

```
chmod 600 /root/.ssh/authorized_keys2
```

```
# Sudoers setup
```

```
echo "nina ALL=(ALL) NOPASSWD: ALL" >> /etc/sudoers
```

```
echo "staf ALL=(ALL) NOPASSWD: ALL" >> /etc/sudoers
```

Ks - lxopac01 - sysdem-opac.ks

```
#  
set -x  
rpm -Uvh http://10.0.0.2/pub/ks.rpms/ICAClient-9.0-1.i386.rpm
```

Le processus d'installation

Kickstart – Arborescence Serveur

```
nina(lx02) - ls -l ks ks.rpms ks.scripts/
```

ks:

```
total 24
```

```
-rw-r--r-- 1 nina nina 1532 May 31 20:38 130.104.57.64.ks
```

```
-rw-r--r-- 1 nina nina 1523 May 31 20:39 130.104.57.6.ks
```

```
lrwxrwxrwx 1 nina nina 16 May 12 23:24 lxopac01.bgsh.ks -> 130.104.57.64.ks
```

```
lrwxrwxrwx 1 nina nina 15 May 12 23:24 lxopac02.bgsh.ks -> 130.104.57.6.ks
```

ks.rpms:

```
total 1296
```

```
-rw-rw-r-- 1 nina nina 1315649 May 31 20:26 ICAClient-9.0-1.i386.rpm
```

ks.scripts/:

```
total 88
```

```
-rw-r--r-- 1 nina nina 73 May 12 23:08 grub.ks
```

```
-rw-r--r-- 1 nina nina 249 May 12 23:08 ntp.ks
```

```
-rw-r--r-- 1 nina nina 991 May 12 23:04 root.ks
```

```
.....
```

Fichier Kickstart – Utilisation (2)

- Kickstart disponible sur serveur en réseau
 - Dhcp: `linux ks`
 - Configuration répertoire dans serveur dhcp
 - Fichier Kickstart: `/.../130.104.xxx.yyy-kickstart`
 - Http:
 - `linux ks=http://lx02.sicm.../pub/ks/lxopac01.ks`
- (Re)boot du client à installer
 - Via le CD d'installation
 - Via une modif. de son boot loader
 - --> **Installation totalement à distance**

Linux Boot Loader – GRUB

- GRUB ?
 - Grand Unified Boot Loader
 - Plus simple que lilo !
 - Fichier de configuration
 - `/etc/grub.conf`
 - Fonctionnalités standard d'un boot loader
 - Menu avec différents kernel
 - Kernel par défaut

Grub.conf "standard"

```
# grub.conf generated by anaconda
#
default=0
timeout=5
splashimage=(hd0,0)/grub/splash.xpm.gz
password --md5 $1$Yym.....JNCz/PdprgmcY0
title Fedora Core (2.6.11-1.35_FC3)
    root (hd0,0)
    kernel /vmlinuz-2.6.11-1.35_FC3 ro root=LABEL=/1 quiet
    initrd /initrd-2.6.11-1.35_FC3.img
title Fedora Core (2.6.9-1.667)
    root (hd0,0)
    kernel /vmlinuz-2.6.9-1.667 ro root=LABEL=/1 quiet
    initrd /initrd-2.6.9-1.667.img
```

Grub.conf ... LE truc efficace

- La procédure consiste à:
 - Copier sur le système à réinstaller l'image du "petit" système linux d'installation (CD)
 - Modifier grub.conf pour ce "petit" linux
 - Rebooter ...

Grub.conf "installation"

```
# grub.conf generated by anaconda
default=0
timeout=5
splashimage=(hd0,0)/grub/splash.xpm.gz
hiddenmenu
password --md5 $1$YymRSJcW.....NCz/PdprgmcYO
title FC 3 Kickstart Install
    root (hd0,0)
    kernel /ks/vmlinuz ro root=LABEL=/1 quiet \
    vnc vncpassword=ucl2012 \
    ks=http://lx02.sicm.ucl.ac.be/pub/ks/lxopac01.bgsh.ks\
    ksdevice=eth0
    initrd /ks/initrd.img
```

Démonstration ... si tt va bien :-)

- Réinstallation de deux postes en BGSH
 - Lxopac01 et lxopac02
- Réinstallation d'un serveur à GBX
 - Sdwks1 (accès VNC)

Maintenance des systèmes

Mises-à-jour, ajout de packages, ...

Red Hat Package Management

- Rpm
 - Outil d'installation et de maintenance d'un package / logiciels
 - Rpm -Uvh monApplication.rpm
 - Rpm -e monApplication
 - Rpm -V monApplication
 - Problème ... gestion des dépendances entre les packages

Yellow Dog Updater Modified

- Outil de maintenance logicielle
 - Construit au dessus de rpm
 - Gère les dépendances entre rpm
 - Packages sont dans des répertoires
 - Utilisation
 - Manuelle : `yum update`
 - Automatique : `/etc/init.d/yum start`

Maintenance Fedora Core (1)

- Basée sur yum
 - Répertoires fc3 et fc3u distribués de par le monde (e.g. ftp.belnet.be)
 - Répertoire fc3/fc3u sur serveur local
 - lx02.sicm.ucl.ac.be
 - /disks/share/linux/fedora/linux/core/3/i386/os/
 - Rsync'é depuis rsync.belnet.be::packages/fedora toutes les 6 heures
 - Configurer les clients pour utiliser lx02

Yum.ks

```
# Yum setup
set -x
sed -i.bak -e 's/enabled=1/enabled=0/' /etc/yum.repos.d/fedora.repo
sed -i.bak -e 's/enabled=1/enabled=0/' /etc/yum.repos.d/fedora-updates.repo
sed -i.bak -e 's/gpgcheck=1/gpgcheck=0/' /etc/yum.conf

cat > /etc/yum.repos.d/ucl-fc3.repo <<-ENDrepo1
[fc3]
name=Fedora Core \${releasever} - \${basearch} - Base
baseurl=http://lx02.sicm.ucl.ac.be/pub/fedora/linux/core/3/i386/os/
enabled=1
gpgcheck=0
ENDrepo1

cat > /etc/yum.repos.d/ucl-fc3-updates.repo <<-ENDrepo2
[fc3u]
name=Fedora Core \${releasever} - \${basearch} - Base
baseurl=http://lx02.sicm.ucl.ac.be/pub/fedora/linux/core/updates/3/i386/
enabled=1
gpgcheck=0
ENDrepo2

/sbin/chkconfig yum o
```

Maintenance Fedora Core (2)

- Problème principal
 - Maintenance d'un seul système
 - ... pas d'un parc de machines
 - Contrôle des mises à jour faible
(sauf si manuel)

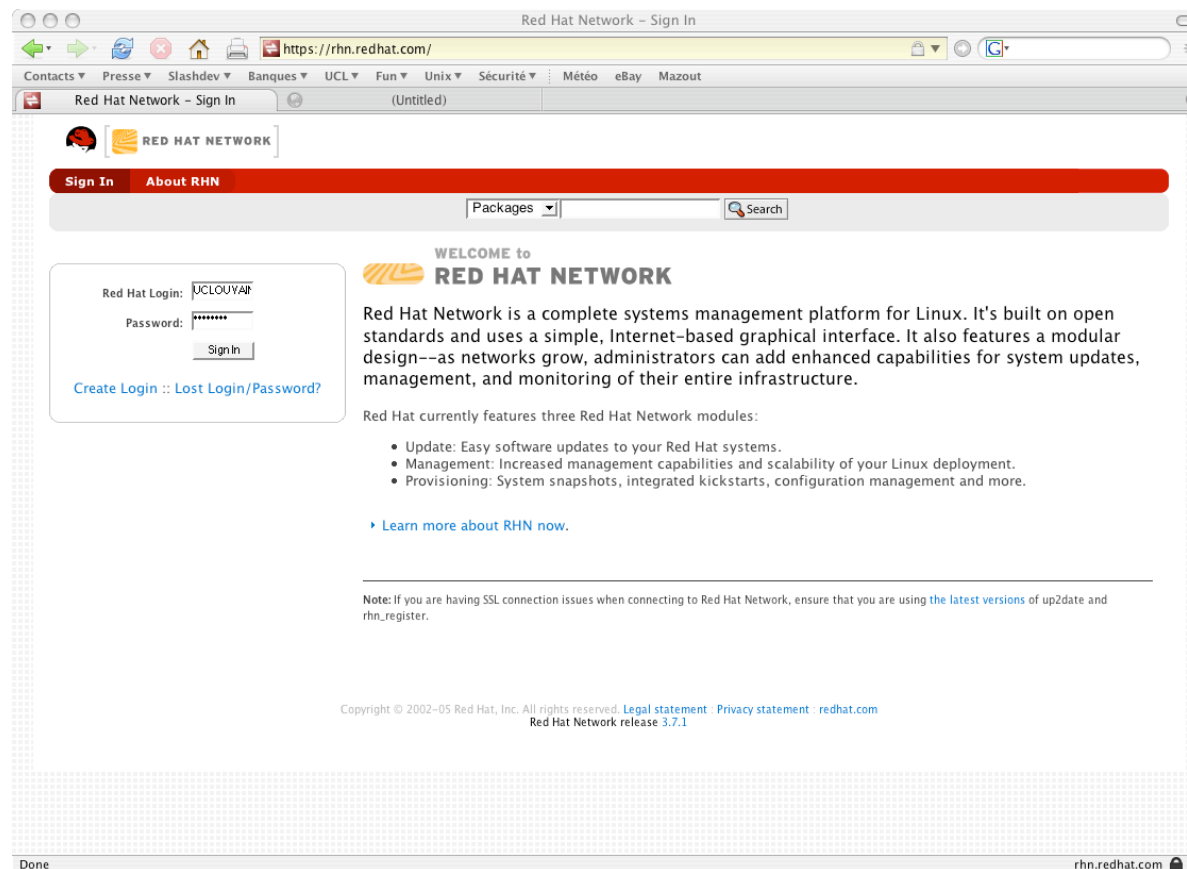
Maintenance RH Enterprise Linux

- Red Hat Network (RHN)
 - Compte d'accès
 - Systèmes doivent être enregistrés
- Gestion individuelle ou collective
- Gestion multi-gestionnaires

Demonstration de Red Hat Network

- <https://rhn.redhat.com/>
- Identifiant: UCLOUVAIN

Red Hat Network 1/11



Red Hat Network 2/11

The screenshot displays the Red Hat Network (RHN) web interface. The browser address bar shows <https://rhn.redhat.com/network/index.pxt>. The user is logged in as 'UCLouvain' and can click 'SIGN OUT'. The main navigation bar includes links for 'Your RHN', 'Systems', 'Errata', 'Channels', 'Schedule', 'Users', and 'Help'. A search bar and a '1 SYSTEM SELECTED' indicator are also present.

Your RHN

- Your Account
- Your Preferences
- Purchase History

System Group Legend

- Fully Updated
- Critical Updates
- Updates

Errata Legend

- Security
- Bug Fix
- Enhancement

BUY NOW!
Add systems
Renew service
Manage & provision

Your RHN

System Summary

Total systems:	3
Out of date systems:	3

Action Summary

Recently completed actions:	1
-----------------------------	---

System Groups

Status	System Group Name	Systems
!	FIREWALLS	1
!	IMRE	1
!	SICM	2

3 of 3 system groups displayed [View All System Groups](#)

Relevant Errata ([View All](#))

Errata ID	Description	Affected Systems
RHSA-2005:535-06	Moderate: sudo security update	3
RHSA-2005:474-15	Low: bzip2 security update	1
RHSA-2005:415-16	Low: squid security update	1
RHSA-2005:504-06	Moderate: telnet security update	1
RHSA-2005:357-19	Low: gzip security update	1
RHSA-2005:506-08	Low: mikmod security update	1
RHSA-2005:505-03	Low: tcpdump security update	1
RHSA-2005:499-05	Moderate: gedit security update	1

Red Hat Network 3/11

Red Hat Network - Systems - Overview

https://rhn.redhat.com/network/systems/index.pxt

LOGGED IN: UCLOUVAIN SIGN OUT

Your RHN Systems Errata Channels Schedule Users Help

Systems 1 SYSTEM SELECTED Manage Clear

System Overview

Systems ([View System Groups](#))

Filter by System: Go 1 - 3 of 3 (1 selected)

	Status	Errata	Packages	System	Base Channel	Entitlement
<input type="checkbox"/>	!	94	153	gate1.bgsh.ucl.ac.be	Red Hat Enterprise Linux ES (v. 4 for 32-bit x86)	Management
<input type="checkbox"/>	!	1	1	lx02.sicm.ucl.ac.be	Red Hat Enterprise Linux ES (v. 4 for 32-bit x86)	Management
<input checked="" type="checkbox"/>	!	1	1	toposrv1.topo.ucl.ac.be	Red Hat Enterprise Linux ES (v. 3 for x86)	Management

Update List Select All Unselect All 1 - 3 of 3 (1 selected)

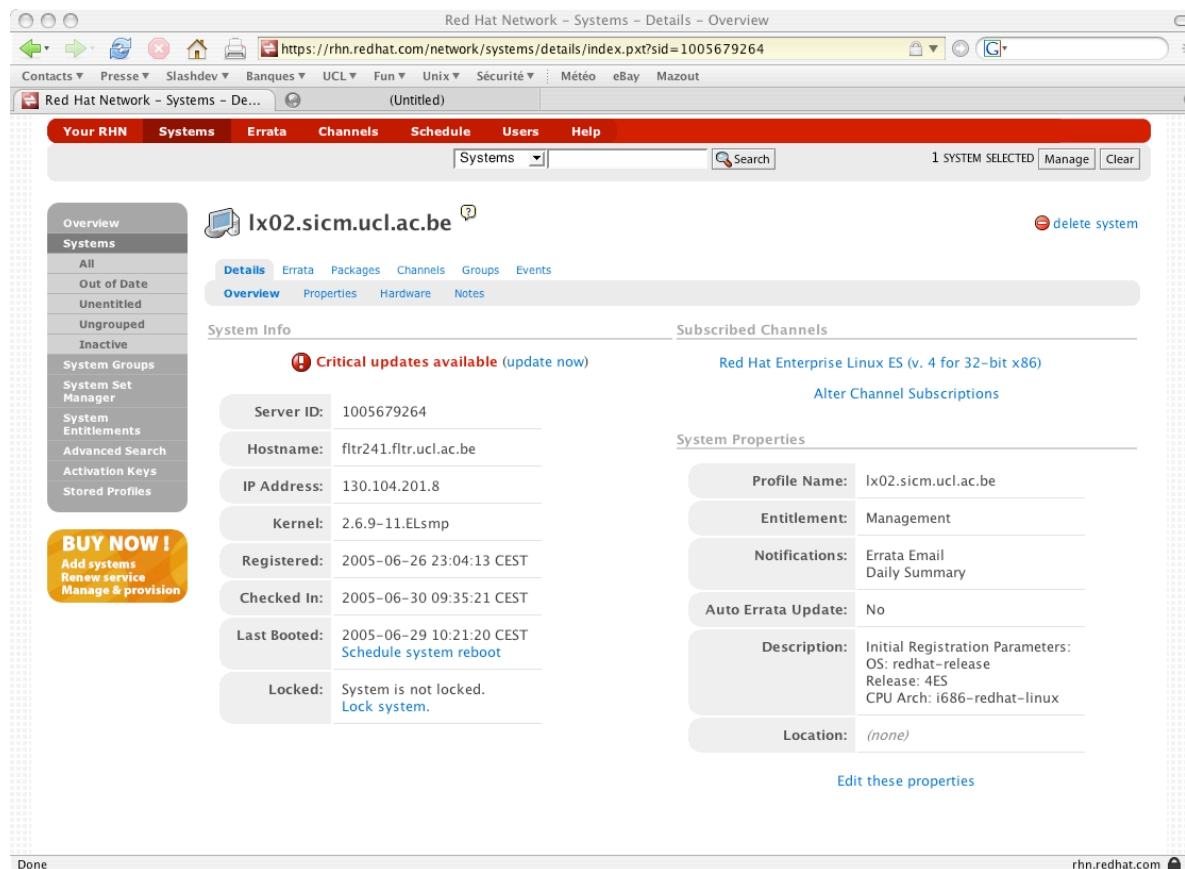
System Legend

- Fully Updated
- Critical Updates
- Updates
- Locked
- Pending Actions
- Not Checking In
- Untitled

BUY NOW!
Add systems
Renew service
Manage & provision

Done rhn.redhat.com

Red Hat Network 4/11



Red Hat Network 5/11

The screenshot shows the Red Hat Network (RHN) interface in a web browser. The browser's address bar displays the URL: https://rhn.redhat.com/network/systems/details/errata_list.pxt?sid=1005679264. The page title is "Red Hat Network - Systems - Errata".

The interface includes a navigation bar with the following tabs: **Your RHN**, **Systems**, **Errata**, **Channels**, **Schedule**, **Users**, and **Help**. Below this bar, there is a search field and a status indicator showing "1 SYSTEM SELECTED" with "Manage" and "Clear" buttons.

The main content area is for the system **lx02.sicm.ucl.ac.be**. It features a sidebar on the left with a tree view containing: Overview, Systems (selected), All, Out of Date, Unentitled, Ungrouped, Inactive, System Groups, System Set Manager, System Entitlements, Advanced Search, Activation Keys, and Stored Profiles. Below the sidebar is an "Errata Legend" with icons for Security, Bug Fix, and Enhancement. At the bottom left of the sidebar area is a "BUY NOW!" button with the text "Add systems", "Renew service", and "Manage & provision".

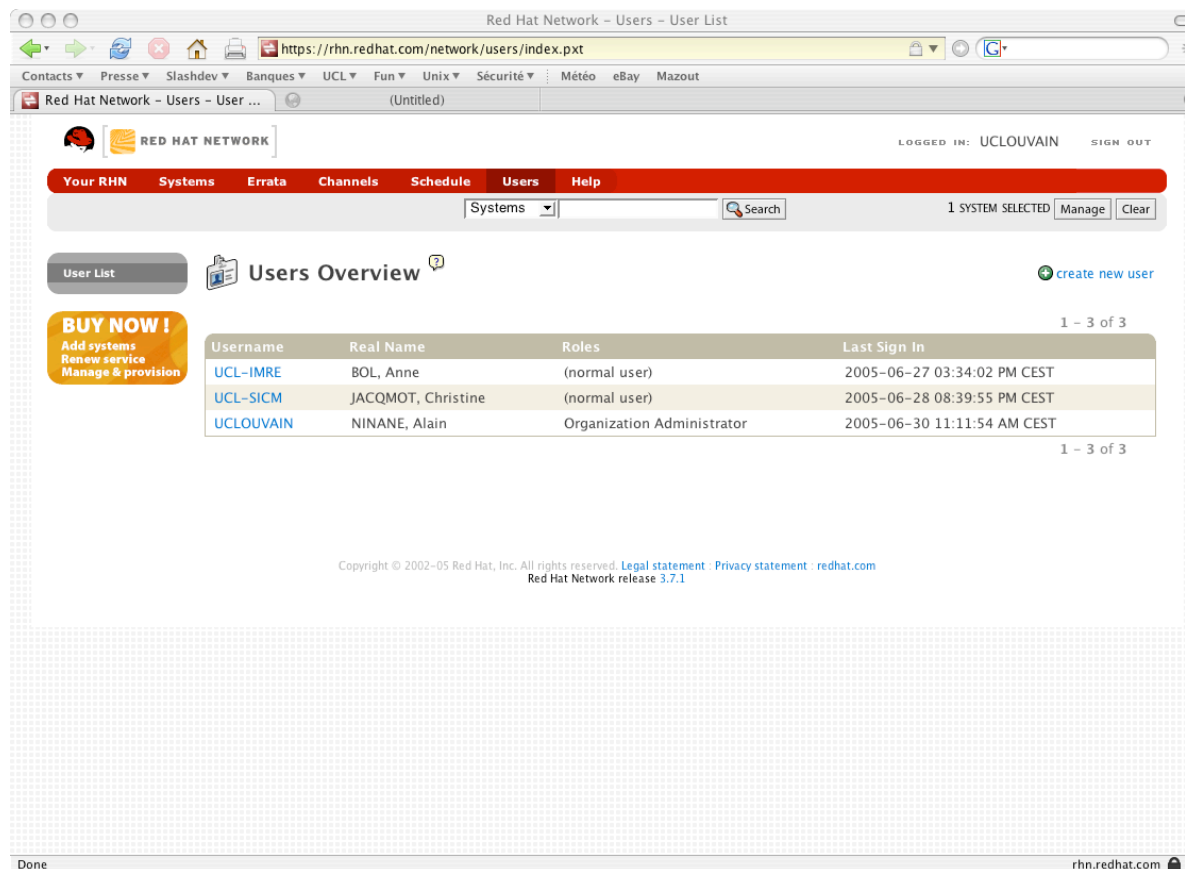
The main content area for the system shows tabs for "Details", "Errata" (selected), "Packages", "Channels", "Groups", and "Events". Under the "Errata" tab, it states "Relevant Errata" and "The following errata may currently be applied to this system." Below this is a table of errata:

Type	Advisory	Synopsis	Status	Updated
	RHSA-2005:535	Moderate: sudo security update	None	2005-06-29

Below the table, there are buttons for "Update List" and "Select All". To the right of the table, it says "1 - 1 of 1 (0 selected)". At the bottom right of the errata section is an "Apply Errata" button.

The footer of the page shows "Done" on the left and "rhn.redhat.com" on the right.

Red Hat Network 6/11



The screenshot shows the Red Hat Network Users interface in a web browser. The browser address bar displays <https://rhn.redhat.com/network/users/index.pxt>. The page title is "Red Hat Network - Users - User List". The user is logged in as "UCLouvain" and can click "SIGN OUT". The navigation bar includes links for "Your RHN", "Systems", "Errata", "Channels", "Schedule", "Users", and "Help". Below the navigation bar, there is a search bar and a "1 SYSTEM SELECTED" indicator with "Manage" and "Clear" buttons. The main content area is titled "Users Overview" and includes a "create new user" link. A table lists the users:

Username	Real Name	Roles	Last Sign In
UCL-IMRE	BOL, Anne	(normal user)	2005-06-27 03:34:02 PM CEST
UCL-SICM	JACQMOT, Christine	(normal user)	2005-06-28 08:39:55 PM CEST
UCLouvain	NINANE, Alain	Organization Administrator	2005-06-30 11:11:54 AM CEST

At the bottom of the page, there is a copyright notice: "Copyright © 2002-05 Red Hat, Inc. All rights reserved. [Legal statement](#) · [Privacy statement](#) · [redhat.com](#)" and "Red Hat Network release 3.7.1".

Red Hat Network 7/11

Red Hat Network - Users - User List - Systems

https://rhn.redhat.com/network/users/details/systems_admined.pxt?uid=4232202

LOGGED IN: UCLOUVAIN SIGN OUT

RED HAT NETWORK

Your RHN Systems Errata Channels Schedule Users Help

Systems Search 1 SYSTEM SELECTED Manage Clear

User List UCL-SICM

BUY NOW!
Add systems
Renew service
Manage & provision

Details System Groups **Systems** Preferences Addresses

Systems administered by this user

This user has administrative access to the following systems. To change the user's access levels, [change the groups](#) to which this user is assigned.

1 - 2 of 2 (1 selected)

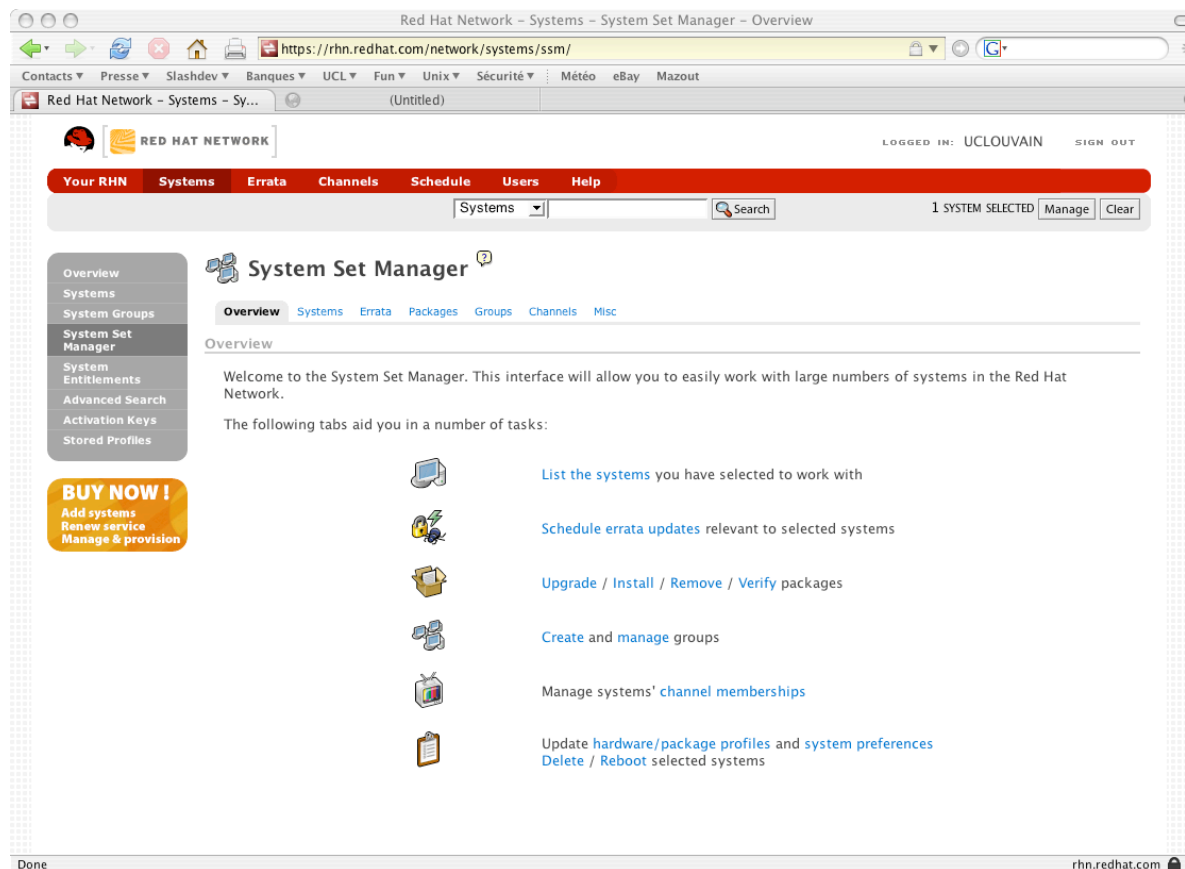
<input type="checkbox"/>	Name	Access Granted Through
<input type="checkbox"/>	gate1.bgsh.ucl.ac.be	SICM
<input type="checkbox"/>	lx02.sicm.ucl.ac.be	SICM

Update List Select All Unselect All 1 - 2 of 2 (1 selected)

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Red Hat Network release 3.7.1

Done rhn.redhat.com

Red Hat Network 8/11



Red Hat Network 9/11

The screenshot shows the Red Hat Network System Set Manager interface. The browser address bar displays <https://rhn.redhat.com/network/systems/ssm/errata/index.pxt>. The page is titled "Red Hat Network - Systems - System Set Manager - Errata". The user is logged in as "UCLOUVAIN". The main navigation bar includes "Your RHN", "Systems", "Errata", "Channels", "Schedule", "Users", and "Help". The "Errata" tab is selected. The "System Set Manager" section shows a "Relative Errata List" for the selected system. The list contains one entry: RHSA-2005:535, a security update for sudo. The "Apply Errata" button is visible at the bottom right of the list.

Red Hat Network - Systems - System Set Manager - Errata

https://rhn.redhat.com/network/systems/ssm/errata/index.pxt

Red Hat Network - Systems - Sy... (Untitled)

LOGGED IN: UCLOUVAIN SIGN OUT

Your RHN Systems Errata Channels Schedule Users Help

Systems Search 1 SYSTEM SELECTED Manage Clear

System Set Manager

Overview Systems System Groups System Set Manager System Entitlements Advanced Search Activation Keys Stored Profiles

Errata Legend Security Bug Fix Enhancement

BUY NOW! Add systems Renew service Manage & provision

Relative Errata List

The errata below apply to one or more of your selected systems.

1 - 1 of 1 (0 selected)					
<input checked="" type="checkbox"/>	Type	Advisory	Synopsis	Systems	Updated
<input checked="" type="checkbox"/>	Security	RHSA-2005:535	Moderate: sudo security update	1	2005-06-29

Update List Select All 1 - 1 of 1 (0 selected)

Apply Errata

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Done rhn.redhat.com

Red Hat Network 10/11

The screenshot shows the Red Hat Network System Set Manager interface. The browser address bar displays the URL: https://rhn.redhat.com/network/systems/ssm/errata/apply_errata_conf.pxt?set_label=errata_list. The page title is "Red Hat Network - Systems - System Set Manager - Errata". The user is logged in as "UCLouvain".

The main navigation bar includes links for "Your RHN", "Systems", "Errata", "Channels", "Schedule", "Users", and "Help". The "Errata" tab is selected. Below the navigation bar, there is a search bar and a "1 SYSTEM SELECTED" indicator with "Manage" and "Clear" buttons.

The "System Set Manager" section has tabs for "Overview", "Systems", "Errata", "Packages", "Groups", "Channels", and "Misc". The "Errata" tab is active. Below the tabs, the section is titled "Confirm Errata Update".

The text states: "The following errata will be applied to the relevant selected systems:"

Type	Advisory	Synopsis	Systems	Updated
🔒	RHSA-2005:535	Moderate: sudo security update	1	2005-06-29

1 - 1 of 1

Below the table, there is a "BUY NOW!" button with the text "Add systems", "Renew service", and "Manage & provision".

The text states: "You may schedule the errata updates to take place as soon as possible, or no earlier than a specified time:"

There are two radio buttons for scheduling:

- ☐ Schedule action as soon as possible
- ☐ Schedule action for no sooner than:

Below the second radio button, there is a date and time selector: June 30, 2005, 4:30 PM CEST.

At the bottom right, there is a "Schedule Updates" button.

The footer contains the copyright information: "Copyright © 2002-05 Red Hat, Inc. All rights reserved. Legal statement · Privacy statement · redhat.com" and "Red Hat Network release 3.7.1".

Red Hat Network 11/11

Red Hat Network - Schedule - Pending Actions

https://rhn.redhat.com/network/schedule/pending_actions.pxt

LOGGED IN: UCLOUVAIN SIGN OUT

RED HAT NETWORK

Your RHN Systems Errata Channels Schedule Users Help

Systems Search 1 SYSTEM SELECTED Manage Clear

Pending Actions

The following actions have been scheduled, and are awaiting execution by one or more systems. Actions can only be archived by Org Admins or by the user who scheduled the action.

1 - 1 of 1 (0 selected)

Action	Earliest	Succeeded	Failed	In Progress	Total
<input type="checkbox"/> Errata Update: RHSA-2005:535-06 - Moderate: sudo security update	2005-06-30 16:30:00 CEST	0	0	1	1

Update List Select All 1 - 1 of 1 (0 selected)

Archive Actions

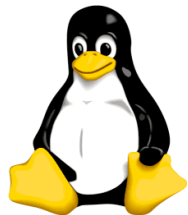
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Red Hat Network release 3.7.1

Conclusion

- Suites Fedora Core et Enterprise Linux
 - Sont complémentaires
 - Complètes
 - Coûts raisonnables
 - Fonctionnelles
- A étudier autres architectures RHN
 - Proxy
 - Satellite

Mais enfin ... qui est ce E. Aisberg ?

- Eugène Aisberg
 - Odessa 1905
 - † Paris 1980
 - Journaliste
 - Vulgarisateur



Les URL's

- Généalogie UNIX
 - <http://www.levenez.com/unix/>
- Fedora Core vs Red Hat Enterprise Linux
 - <http://fedora.redhat.com/about/rhel.html>
- Belnet - packages
 - <http://ftp.belnet.be/packages/>
- Belnet - images iso fedoracore 3
 - <http://ftp.belnet.be/packages/fedora/linux/3/i386/iso/>
- Scientific Linux CERN 3
 - <http://linux.web.cern.ch/linux/>
- Fedora Legacy Project
 - <http://www.fedoralegacy.org/>
- Red Hat Network
 - <https://rhn.redhat.com/>
- Architecture Red Hat network
 - <http://www.redhat.com/software/rhn/architecture/>
- Eugène Aisberg
 - <http://dspt.club.fr/AISBERG.htm>