

Installing Software

David Morgan

© David Morgan 2003,2004

Two broad approaches

- Tarball/source code
 - Distributed as .tar or .tar.gz file
 - Unpacks to source and files needed to compile
 - Fine-grained choice of compilation options
 - Difficult to uninstall
- rpm/binary
 - Distributed as .rpm file
 - Unpacks as compiled binary ready-to-run
 - No choice of compilation options
 - Easy to uninstall

© David Morgan 2003,2004

tar command

- tar ~~-c~~yf dest.tar srcdir
 - Executed from within parent directory of srcdir
 - Captures whole subtree under srcdir
- tar ~~-x~~yvf dest.tar
 - Executed from within any subdirectory
 - Creates a subdirectory “srcdir” with whole contents of the original
- tar ~~-t~~yvf dest.tar
 - View contents

© David Morgan 2003,2004

tar command

- Better (more fully faithful) than cp for archiving
- tar default: no compression
 - use with gzip
 - or use -z option
 - <file>.tar and <file>.gz
- Destination can be a device (tar=tape+archive)
 - tar -cvf /dev/fd0 srcdir
 - tar -xvf /dev/fd0

© David Morgan 2003,2004

tar command

- Create a directory (inst)
- Unpack there (tar -x)
- Read README and INSTALL
- Perform the build sequence, e.g.:
 - cd inst
 - ./configure – produces a make file
 - make – builds app using the make file
 - make install – deploys built files into filesystem

© David Morgan 2003,2004

rpm command essentials

- rpm -qilp <a package file's name>
 - List contents of an rpm package file
- rpm -qif <name of a file on your system>
 - From which rpm did file originate (if any)?
- rpm -Uvh <a package file's name>
 - Install an rpm file
- rpm -e <a package's name>
 - Uninstall an rpm application
- rpm -qa
 - list all packages installed

© David Morgan 2003,2004

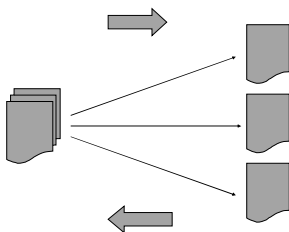
rpm files & operations

- packages come in “package files”
- packages contain all application ingredients
- /bin/rpm deploys them into filesystem
- rpm’s database “memorizes” for undo

© David Morgan 2003,2004

Package/file mapping

A package maps to multiple files



A file maps to a single package

© David Morgan 2003,2004

rpm's database

- set of files in `/var/lib/rpm`
- structure known to `/bin/rpm`

`/var/lib/rpm:`

`conflictsindex.rpm`
`fileindex.rpm`
`groupindex.rpm`
`nameindex.rpm`
`packages.rpm`
`providesindex.rpm`
`requiredby.rpm`
`triggerindex.rpm`

© David Morgan 2003,2004

rpm: 10 modes of operation

- to install `-U` (preferred to `-i`)
- to uninstall `-e`
- to query `-q`
- 7 others
- each takes its own set of options

© David Morgan 2003,2004

rpm: install mode, top options

- Print progress indicator bar -h
- print progress as percentage --percent
- do mock not actual install --test
- others to defeat safeguards
 - overwriting newer files
 - installing despite missing dependencies

© David Morgan 2003,2004

rpm: query mode, top options

- for the system
 - what packages are installed -a (all)
- for a package
 - what files belong to it? -l (list)
 - what information describes it? -i
- for a file
 - what package does it belong to? -f <filename>

© David Morgan 2003,2004

File nomenclature distinctions

- Name of package file, e.g. `xbill-2.0-7.i386.rpm`
 - “`rpm -Uvh`” requires it
 - “`rpm -qilp`” requires it
- Name of a deployed file, e.g. `/usr/X11R6/bin/xbill`
 - “`rpm -qif`” requires it
- Name of a package, e.g. `xbill` or `xbill-2.0-7`
 - “`rpm -e`” requires it

© David Morgan 2003,2004

File nomenclature gotchas

```
[root@hostz root]# ls -l xbill*
-rw-r--r-- 1 root  root  45774 May  8 11:06 xbill-2.0-7.i386.rpm
[root@hostz root]#
[root@hostz root]# rpm -Uvh xbill
error: open of xbill failed: No such file or directory
```

“But it *is* there, whaddaya mean I can’t install it?!”

© David Morgan 2003,2004

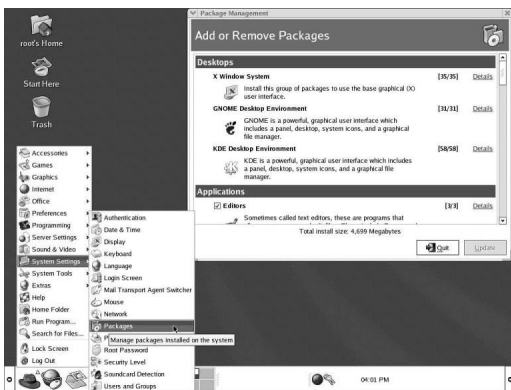
File nomenclature gotchas

```
[root@hostz root]# rpm -Uvh xbill-2.0-7.i386.rpm
Preparing...      ##### [100%]
 1:xbill          ##### [100%]
[root@hostz root]#
[root@hostz root]# rpm -e xbill-2.0-7.i386.rpm
error: package xbill-2.0-7.i386.rpm is not installed
```

“Yes it is!! I *just* installed it. Now I’m entitled to get rid of it!!”

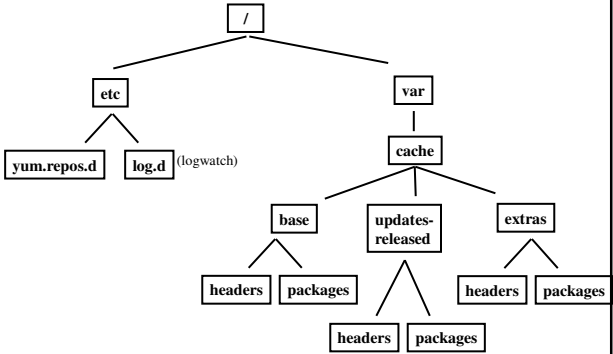
© David Morgan 2003,2004

rpm: graphical install & uninstall



© David Morgan 2003,2004

yum default directories and files



© David Morgan 2003,2004

Where to Get More Information

- HOWTO

- http://www.phy.duke.edu/~rgb/General/yum_HOWTO/yum_HOWTO/

- homepage

- <http://linux.duke.edu/projects/yum/>

© David Morgan 2003,2004