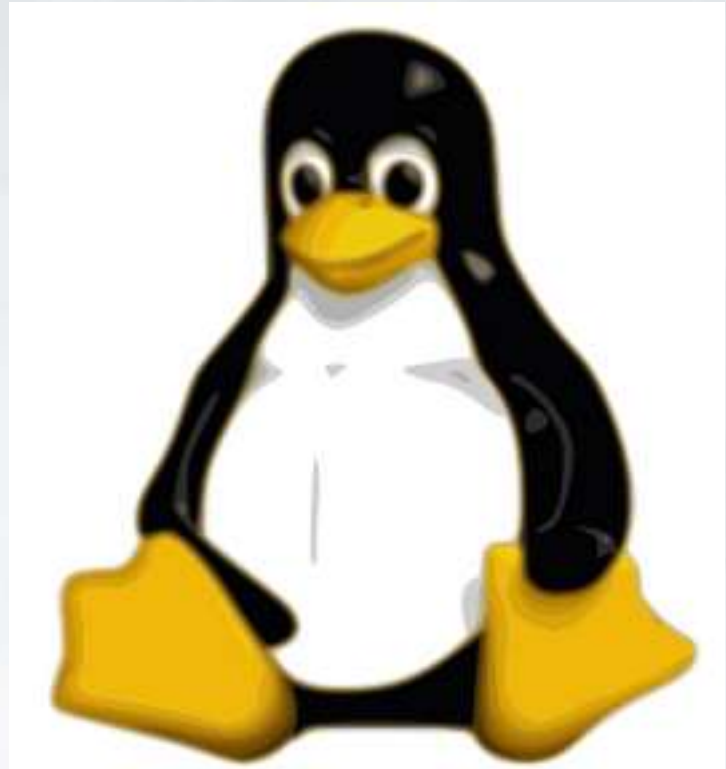# Backups

In Linux

The Linux System

- Many Linux distros set up seperate **"/home"** and "/" (root) partitions.
- User configuration files are hidden with a "." (period) in the front of the name.
- Separate partitions makes it easy when ..
  - Updating without touching the user's files and configurations.
  - Cloning for size and/or different intervals
  - Keeping uncontrolled programs from filling up the other partition
- Linux's "Update Often" Philosophy and free operating systems makes good backups better

Backing Up Repositories

Linux distributions have package managers to handle insert, update and deleting applications

- Debian-based distros, like Ubuntu, use **Apt-Get**
- Red Hat based distros, like Fedora, use **Yum**

Repository lists need to be backed up up

- Ubuntu's lists in **/etc/apt/sources.list**
- Ubuntu's 3rd party repositories in **/etc/apt/sources.list.d/**
- Fedora's lists in **/etc/yum.repos.d/**

Some repositories are version-specific. Check for version identifier before restoring

Backup list of Installed Programs

To save the list of applications installed through the package manager

- Debian based systems use
  dpkg --get-selections >*/backup/installed-software.log*
- RPM based distributions, such as Red Hat, openSUSE and Fedora use
  rpm -qa >*/backup/installed-software.log*

This will save the output into whatever file is specified after the ">"

Restore Programs from list

For Debian based distributions
1. **sudo dpkg --clear-selections**
2. **dpkg --set-selections <***/backup/installed-software.log*
3. **sudo apt-get dselect-upgrade**

For RPM based distributions
1. **LIST="$(cat** */backup/installed-software.log* **)"**
- **for s in $LIST; do yum install $s; done**
  or
  yum -y install $(cat */backup/installed-software.log***)**

Using Synaptic

To backup the list of installed packages
1. Click File ->Save Markings
2. Select where to save the file, and name
   - Make sure you have checked "*save full state, not just changes*" option click on Save
1. Will include any files you have marked for installation, even though not installed
2. Click File -> Save Markings to update file at any time

To restore from this list
– Click File -> Read Markings
– Select the file you saved previously
– Click Apply

rsync

- Included in most Linux distributions by default
- Most backup programs use rsync at the core
- Is a Command Line based utility
- Send just the differentials across the link without requiring both sets of files present beforehand
- Can update whole directory trees and filesystems
- Can preserve symbolic links, hard links, ownership, permissions, devices and times
- Can transport over rsh, ssh or direct sockets
- Does not require root privileges

Grsync

- Saves multiple settings with customized names (no limit on number of "sessions")
- Can do simulation or normal execution
- Captures rsync output in window and log to a file
- Can pause rsync execution
- Can run custom commands before (and stop in case of failure) and after rsync *e.g. mount backup locaton before running*
- Shell script for batch, crontab use etc. provided
- Can import and export sessions on file; *i.e. share your settings with people*!

Back In Time *a simple backup tool for Linux*

- Simple to use
  - Select where to save the snapshot
  - Select what to save (and what not to save)
  - Select how often to run it
- Can include and exclude files, folders and patterns
- Easily navigate through snapshot to select file(s) to restore
- Can run a differential
- Available for Linux, Windows and Mac

Clonezilla

- Based on Partimage, ntfsclone, partclone, and dd to clone partition.
- Can save and restore not only partitions, but also a whole disk.
- Supports ext2-4, reiserfs, xfs, jfs and LVM2 (not LVM1) (Linux), FAT, NTFS (MS Windows), and HFS+ (Mac OS),
- Supports 32-bit (x86) or 64-bit (x86-64).
- Only used blocks in partition are saved and restored. For unsupported file system, sector-to-sector copy is done by dd
- Multicast is supported in Clonezilla SE

Resources

- For commands for file lists
  http://www.cyberciti.biz/tips/linux-get-list-installed-software-reinstallation-restore.html
- Synaptic
  http://www.ubuntugeek.com/howto-reinstall-all-of-currently-installed-packages-in-fresh-ubuntu-install.html
- For information on rsync
  http://everythinglinux.org/rsync/rsync_content.html
- Grsync
  http://www.opbyte.it/grsync/
- Back-in-Time
  http://backintime.le-web.org/
- Clonezilla
  http://clonezilla.org/