User Manual for Data Backups

On Linux workstations

Accepted formats: are EXT3, NTFS and FAT32
Recommended format: EXT3

Mounting backup disks and preparing for backups

1. Log in with your account on the Linux workstation.
2. Plug the backup disk in the power strip (provided by the GM/CA - CAT staff) or nearby outlet
3. Connect the disk to the same computer with USB or firewire data cable.
4. Power up the disk if needed - some disks have power switch and some don't.

   Window should pop up with the name "removable-*#" where * is a letter and # is a number (Fig. 1). The letter for the first mounted disk will be determined according to how many other devices are mounted on a given computer. Subsequent letters for the additional disks on the same computer will follow in alphabetical order. Numbers correspond to the partition on the disk.
   At the same time, icon for the mounted disk will appear on the desktop. If the disks have unique labels, they will be carried by these icons. If more than one disk has exact same label, second disk will be displayed with (2) after the label etc. (Fig. 2).
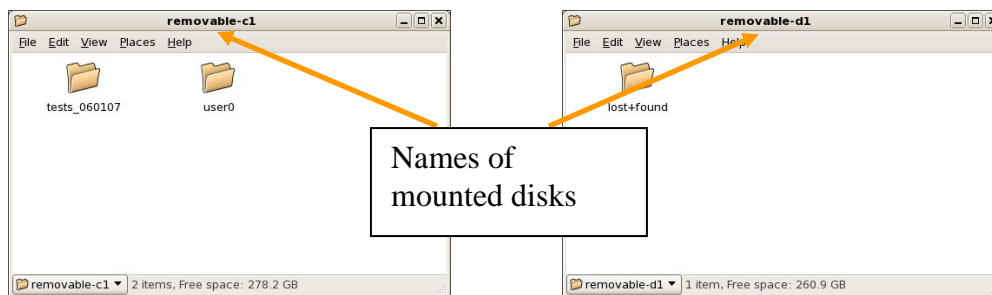

Names of mounted disks

Figure 1. Two windows which pop up when two disks are mounted on the same computer: "removable-c1" is the first disk and "removable-d1" is the second. In this case, each disk has only one partition. Separate window will pop up for each partition.

Full path to the backup disk is /media/removable-*# where "*" is a letter and "#" is a number.

5. Change file and directory ownership to your own account by executing command
   chown_media –R /media/removable-*#
   Here * and # denote a letter and a number in the path of the mounted disk, as discussed above.
6. If *chown_media* fails (i.e. still cannot write on the disk or access already existing directories and files), an alternative to the step #5 is to use
   chmod_media –R /media/removable-*#
   which will make all files and directories mode 777 (rwx for all).

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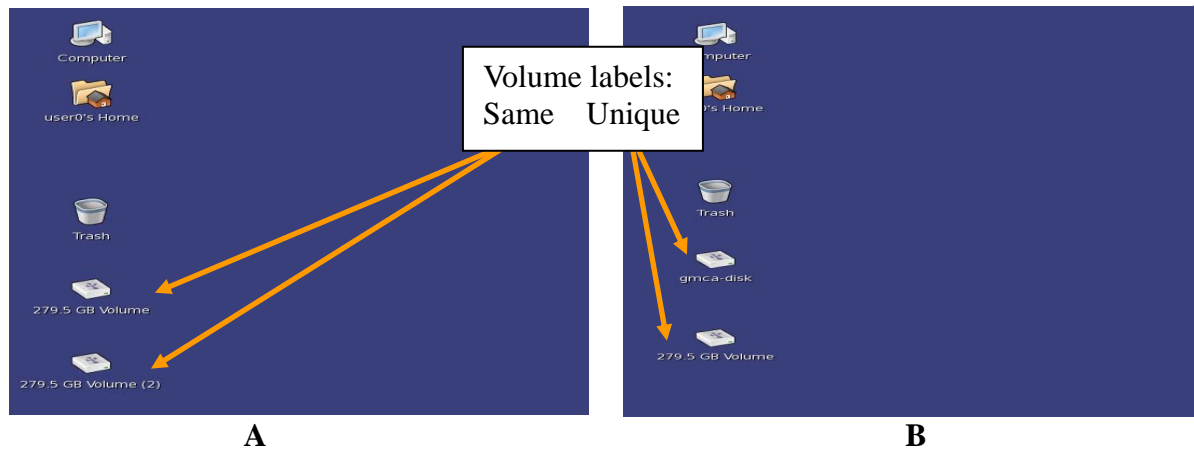Computer help: Sergey Stepanov or Mark Hilgart
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Figure 2. Two icons corresponding to the two disks mounted on one computer – A) when disks have same labels and B) when labels are unique.

Backing up the data

There are several ways to back up data onto the mounted disks. You can run rsync command, scp command, cp command (with –p option recommended), midnight commander (mc) or drag and drop utility. **Preferred option** is to run the script named *backup_rsync.sh*, provided by GM/CA-CAT staff. Once started, the script will check for new files every 5 minutes and will add them to the backup.

To back up contents of the CURRENT directory, run
backup_rsync.sh /media/removable-*#

Note: Running multiple copies of rsync may degrade performance. Therefore it is recommended to establish a directory tree for your data collection under one directory and than back up that directory with single rsync process. For example, establish GMCA_TodaysDate under your home directory.

CTRL C to stop the script. Depending on the state of the script, you may need to CTRL C twice.

Deleting data from backup disks
1. Right click on the files or folders to be deleted and select "Move to Trash"
2. Right click on the "Trash" icon on the desktop and choose "Empty Trash"

Dismounting backup disks

To unplug or power down the disk, it MUST be dismounted first. Make sure there are no programs accessing any files and/or directories on the backup disk. There are two ways to dismount: Run command
sudo umount /media/removable-*# (no trailing slash)
from the command line or right click on the corresponding desktop icon (Fig. 2) and choose "Unmount Volume" from the menu. **Second option works more reliably.**
In rare cases, a drive's directory may remain after unmounting. To remove it, use
rmdir_ media /media/removable-*#
Where removable-*# is the disk you removed without properly dismounting it.

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On Windows workstations

Accepted formats: NTFS, FAT32 and the Mac format
Recommended format: FAT32 (because of compatibility with Linux systems)

Mounting backup disks and preparing for backups

1. Log in with your account on the Windows workstation
2. Plug the backup disk in the power strip (provided by the GM/CA - CAT staff) or nearby outlet
3. Connect the disk to the same computer with USB or firewire data cable and power up the disk if needed - some disks have power switch and some don't.

After the disk has been mounted, there are two options for copying the data: "drag and drop" or **recommended** rsync type backup. For the latter,

4. Open Total Commander by double clicking on the desktop icon or by starting it from the "Start" menu (Fig. 3)
5. **Important !** On the resulting window, make sure the left side displays your data directory to be backed up and the right side displays your backup disk
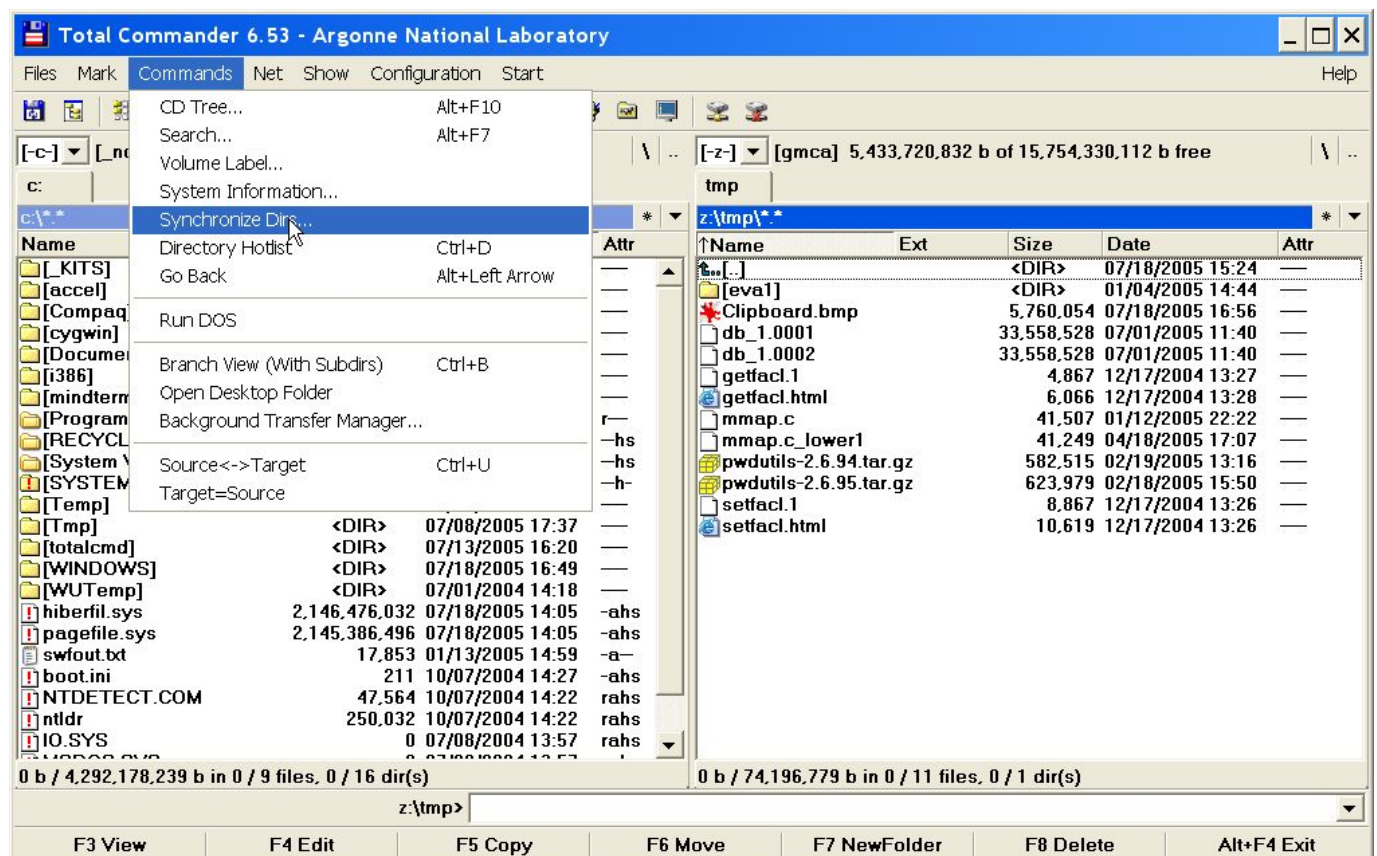

Figure 3. Total Commander for data management

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6. With SHFT+left click or CTRL+left click select one or more directory on the left as your source directories which will be backed up.
7. Choose "Synchronize Dirs" in the "Commands" pull-down window
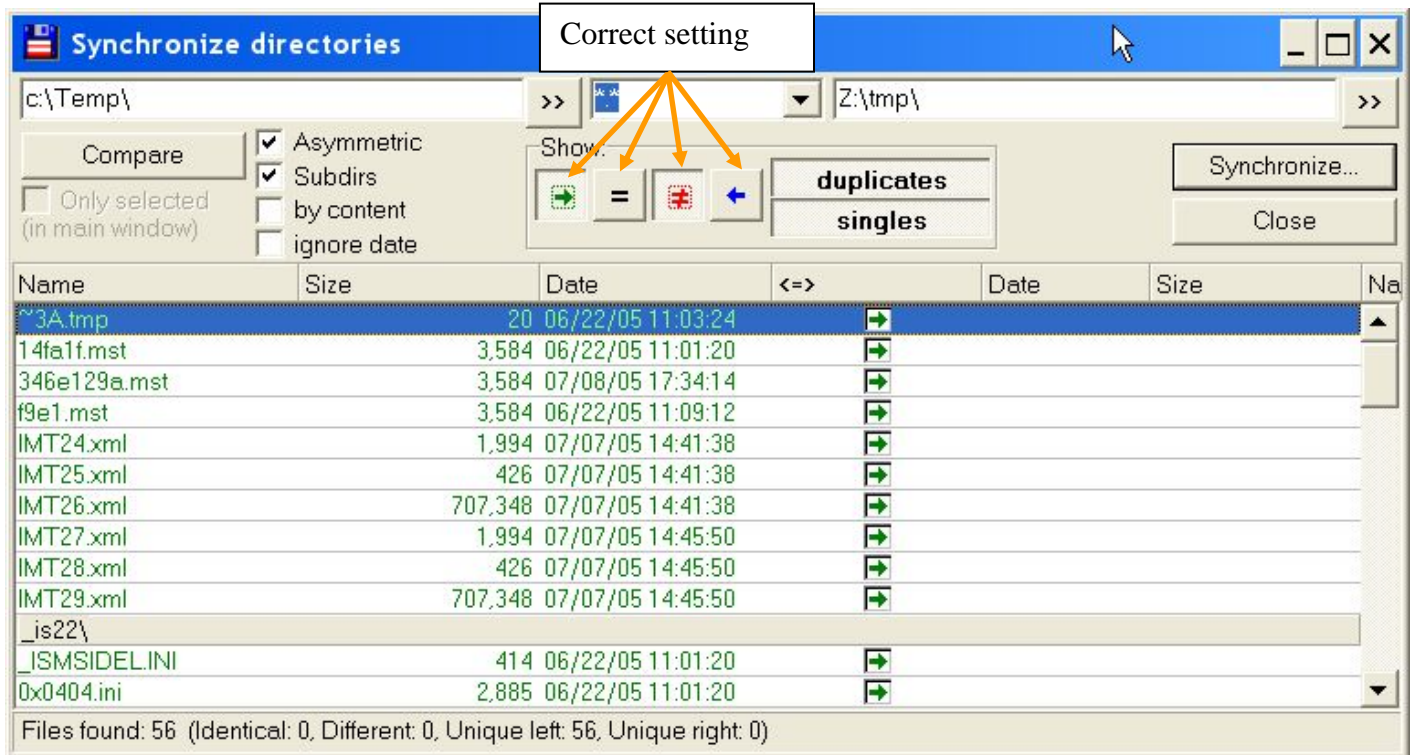

Figure 4.

8. Make sure that the synchronization options are chosen as shown on Fig. 4.
9. Click on "Compare" in the upper left corner of the window
   New files, not yet copied to the backup disk will be displayed on the left in green color.
10. Click on "Synchronize" in the upper right corner to copy the listed files
After copying is finished, new files written to the source directory will be displayed. Periodically click on "Synchronize" to copy new files.

Dismounting backup disks
To unplug or power down the disk, it MUST be dismounted first. Make sure there are no programs accessing any files and/or directories on the backup disk.
Click on the green arrow in the lower right corner of the monitor. Select your disk from the list. Typically it is listed first.

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Troubleshooting

DISK DID NOT MOUNT

If your disk didn't mount on the windows computer, it is probably EXT3 format and needs to be mounted on Linux machine.

If your disk didn't mount on the Linux computer, there may be few different problems:
1. If the error below (Fig. 5) is shown but with the title "Cannot mount volume", log out of the Gnome desktop and then log back in again. If the drive is not mounted at that point, try another workstation.

2. <u>Data cables</u>: It has been observed that USB and Firewire data cables are behaving differently. Often disk mounting and other problems may be solved by switching from one type of data cable to another.

3. If above two steps didn't help, type *mount* on the command prompt and hit "Enter". Last line of resulting output will contain the format of the disk. If it is NTFS or FAT, you may try mounting your disk on Windows computer. If it is EXT3 and won't mount on Linux system, contact your host for further assistance.

WHEN UNMOUNTING A DISK:

If following error is displayed (Fig. 5) during unmounting the disk (i.e. with right click as described on page 2), use command
sudo umount /media/removable-*#
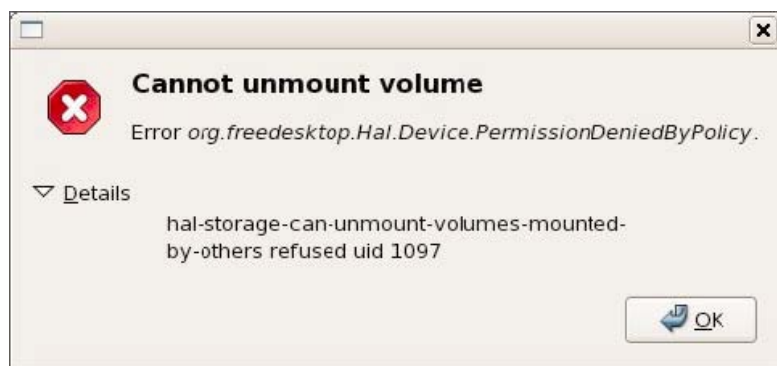Also described on Page 2.

Figure 5 Error message during unmounting the disk.

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Please list here all other problems encountered during disk mounting and/or backups. Record the disk maker, model, and the format, if possible.