

## Procedure for Data Backup using the *HomeArchiver* script

### Overview

*HomeArchiver* is a Cshell script that uses the Linux *rsync* command to REPEATEDLY update a copy of your entire Home directory on a locally attached external disk. These disks must be USB2 compatible.

### Procedure

#### At Home: Prepare your disk AT HOME!

1. **FORMAT YOUR DISK** with a Linux-friendly filesystem: either "ext3" or "vfat". At SBC, you will be connecting your disk to a RedHat Linux workstation. On Redhat Linux, "ext3" will work the best. "vfat" and "ntfs" will also work; but, **Macintosh formats will not work!** **Caution: Disks formatted as "ext3" will only be usable on Linux systems! If you won't have access to Linux systems at home; choose the "vfat" format.**

Formatting disks requires administrator privileges so you may need IT support help at home. Please don't wait until the last minute.

Also, change permissions on your properly formatted disk adding "rwx" for "other" (everyone!) Again, this step requires administrator privileges.

Please ask the person who formats your disk to do this for you.

Finally, **PLEASE DO NOT USE SPACES IN YOUR VOLUME LABEL!**

2. **TEST YOUR DISK AT HOME** as a non-root user. Write some files, read them and erase them. We want to be sure you can use your data when you get it home. Clean off your disk at home so that you have as much space available as possible for your SBC data. It is not unusual for users to generate 250G per day at the beamline (samples permitting)!

#### At SBC: When your beamtime begins (or shortly after you begin collecting data)

1. **LOGIN TO AN SBC LINUX WORKSTATION.** Choose a Linux system in your assigned "WORKAREA" rather than the "OPS" area so you will have access throughout your entire visit. Workarea systems are typically available to you for 24 hours AFTER your assigned beamtime. Login using the username of the account assigned to you.
  - a. open a terminal window and list the contents of the /media directory (Linux command: `ls /media`)
2. **ATTACH YOUR DISK TO THE SBC LINUX WORKSTATION.** Power ON your disk and connect the USB cable between your disk and the SBC Linux Workstation (ports may be on front or back of workstations). Wait a minute or so until you see a new icon on your desktop that represents your disk. Normally you will also see a pop-up window showing the contents of the disk. You may close the pop-up window. It won't be needed in this procedure.

- 3. IDENTIFY THE MOUNTPATH TO YOUR DISK. List the contents of the /media directory once again (`ls /media`) and identify the directory where your disk is mounted (there should be a new directory listed that was not there before you attached the disk). Use the Linux command below (the last flag is a lower case letter L as in the word "local"):**

(Linux command: **`df -hTl`** )

Notice that the full Linux path to your disk is listed under the column to the far right (the column header is labeled "Mounted on"). I call this the **MOUNTPATH**.

**WARNING: Linux creates a mount point under /media using the volume label on your disk. If the volume label on your disk contains whitespace (blanks) then an SBC Staff person must create a symbolic link to your volume label under /media and you must substitute the new link name for your volume label in the MOUNTPATH when you use it below. (Staff: see "symbolic link" in the Procedures Panel)**

- 4. RUN THE HomeArchiver COMMAND**
- a. run the `HomeArchiver` command in a terminal window in your home directory by typing "`HomeArchiver`" (without the quotes) and pressing the Enter key.
  - b. Following the on-screen instructions, enter the MOUNTPATH and CONTROL\_WORD when prompted to do so. These terms are defined below:

MOUNTPATH: the full Linux path to your disk (see above)  
 CONTROL\_WORD: a PREFIX for HomeArchiver to use for naming the three control files described below. The word you provide will be used in place of "CONTROL\_WORD" below. HomeArchiver creates these files in your home directory. This is just a word you make up. Please keep it short and do not use spaces or special characters. I like to use all capital letters so it will stand out when I list my home directory. Often, I use the word: **DISK1**  
 The three files generated by HomeArchiver are:

<code>CONTROL_WORD.excluded</code>	(list of files,directories NOT to copy)
<code>CONTROL_WORD.log</code>	(a record of each rsync command)
<code>CONTROL_WORD.enabled</code>	(removing this file will initiate a " <u>normal exit</u> " of the script in-between rsync commands)

- c. Press Enter to CONTINUE with the first backup. This step provides an opportunity (prior to pressing Enter to CONTINUE) to update the list of files and directories that you DO NOT wish to be copied. Any files or directories listed in your `CONTROL_WORD.excluded` file will be excluded by the rsync command. This is an advanced feature. Most users simply press Enter.

**5. MONITOR THE STATUS OF YOUR BACKUP**

- a. **Periodically check space available on your disk**  
(Linux command: `df -hT1` )
- b. **Periodically check that HomeArchiver has run rsync in the past 10 minutes by examining the output written to the terminal where you ran the HomeArchiver script**
- c. **Periodically check that the files on your disk correspond to the files in your home directory. (some useful Linux commands are "`ls -axl`" and "`du -sh *`")**

6. **TERMINATE THE SCRIPT AND UNMOUNT YOUR DISK. When you are prepared to leave**
  - a. **remove your CONTROL\_WORD.enabled control file from your home directory. In a different terminal than the one where you ran HomeArchiver run the Linux command: `rm CONTROL_WORD.enabled`. Of course, use YOUR control word and not "CONTROL\_WORD" above. Now PLEASE WAIT! for a message in the HomeArchiver terminal instructing you to unmount your disk. The script needs to complete the final rsync and then open permissions on the files copied to your disk. This may take a minute or two. Please be patient and do not unmount the disk prematurely.**
  - b. **use the desktop icon (RIGHT-click icon, then select "Unmount Volume") to unmount your disk when HomeArchiver prompts you to do so.**
  - c. **verify that your disk is no longer mounted (Linux command: `df -hTl`) The icon should have disappeared from the desktop. If your disk did not unmount, DO NOT DISCONNECT YOUR DISK OR POWER OFF YOUR DISK! Any terminal where `pwd` is on your disk hierarchy will cause the disk to appear "busy" and unmount will fail. Close those terminals or "`cd`" to your home directory and try again to unmount your disk.**
  
7. **DISCONNECT AND POWER OFF YOUR DISK. Perform this step only after you have successfully unmounted your disk.**

**At Home: CHECK YOUR DATA AT HOME!**

**VERIFY THAT YOU HAVE ALL OF YOUR DATA as soon as possible when you return home. Be aware that your SBC TimeBomb date indicates when your data will be deleted from SBC data space! After this date we cannot help recover your data.**