**. Backup Restore using tar command**

**tar features:**

1. tar ( **t**ape **ar**chive ) is used for single or multiple files backup and restore on/from a tape or file.  
2. tar can not backup special character & block device files , shows as 0 byte files with first letter of permissions as b or c for block or character.  
3. tar Works only on mounted file system, it can not access the files on unmounted file system.

**Backing up all files in a directory including subdirectories to a tape device (/dev/rmt/0) or a file.**

**Example 1 :**

***$tar cvf /dev/rmt/0 \****

In the command above Options are c -> create ; v -> Verbose ; f->file or archive device ; \* -> all files and directories . Together the commands means create a tar file on /dev/rmt/0 from all file and directories s in the current directory.

**Example 2:**

***$tar cvf /home/backup \****

Create a tar called backup in home directory , from all file and directories s in the current directory.

**Viewing a tar backup on a tape or file**

t option is used to see the **t**able of content in a tar file.

***$tar tvf /dev/rmt/0 ## view files backed up on a tape device.***

***$tar tvf /home/backup ## view files backed up inside the backup***

*In the command above Options are c -> create ; v -> Verbose ; f->file or archive device ; \* -> all files and directories . Together the commands means create a tar file on /dev/rmt/0 from all file and directories s in the current directory.*

**Extracting tar backup from the tape**

x option is used to e**x**tract the files from tar file.

***$tar xvf /dev/rmt/0 ##extract / restore files in to current directory.***

***$tar xvf /home/backup ## extract / restore files in to current directory.***

Note : Restoration will go to present directory or original backup path depending on  
relative or absolute path names used for backup.

**Some of useful tar options.**

***Extract & keep the file permissions (default for superuser)*** *-p, –preserve-permissions*

***Filter the archive through gzip*** *-z, –gzip*

***Filter the archive through bzip2*** *-j, –bzip2*

***Only append files newer than copy in archive*** *-u, –update*

***Append files to the end of an archive*** *-r, –append*

***Delete from the archive (not on mag tapes!)*** *–delete*

***Find differences between archive and file system*** *-d, –diff, –compare*

***Test the archive volume label and exit*** *–test-label*

***Change to directory DIR*** *-C, –directory=DIR*

**Sometimes tar file or tar ball becomes big and it can compressed to copy or store with less space.**

**Compressing file/s**

compress -v file\_name  
gzip filename

**To uncompress a file**

uncompress file\_name.Z  
or  
gunzip filename

**2. Backup restore using cpio command**

**cpio features**

1. Used for single or multiple files backup .  
2. Can backup special character & block device files .  
3. Works only on mounted file system.  
4. Need a list of files to be backed up .  
5. Preserve hard links and time stamps of the files .

**Using cpio command to backup all the files in current directory to tape.**

***find . -depth -print | cpio -ovcB > /dev/rmt/0***

cpio expects a list of files and find command provides the list, cpio has to put these file on some destination and a > sign redirect these files to tape. This can be a file as well .

**Viewing cpio files on a tape**

***cpio -ivtB < /dev/rmt/0*** *## Options i -> input ; v->verbose; t-table of content; B-> set I/O block size to 5120 bytes*

**Restoring a cpio backup**

***cpio -ivcB < /dev/rmt/0***  *## Options i -> input ; v->verbose; t-table of content; B-> set I/O block size to 5120 bytes*

**Compress/uncompress files :**

You may have to compress the files before or after the backup .

click for full options and details of [**GNU cpio**](http://www.adminschoice.com/cpio-gnu)

**3. Backup and Restore linux file system**

ext2 ext3 ext4 backup and restore can be easily done with a dump utility which allows you to take full and incremental file system backup. Backup can be taken on a tape , file or a remote system and restore full or selective files

Dump is available at sourceforge.net http://dump.sourceforge.net/

Here are complete steps to get started with complete linux file system backup and restore

**1. Install dump package**

Dump package contains dump and restore utilities and it also installs tape device package rmt.

*[root@localhost ~]# yum install dump  
…  
Installed:  
dump.x86\_64 1:0.4-0.24.b44.fc20*

*Dependency Installed:  
rmt.x86\_64 2:1.5.2-9.fc20  
Complete!  
[root@localhost ~]#*

**2. Full file system backup**

After installation , dump can be used to take a file system backup  
In this example we will take full backup /dev/sda9 backup

Numerical argument as 0 is full backup and susquent number represant the incrementatl backup corresponding to full back.

Syntax is : dump – < level number > -f < source filesystem device >

-u Update the file /etc/dumpdates

*[root@localhost ~]# /sbin/dump -0u -f /dev/st0 /dev/sda9  
DUMP: Date of this level 0 dump: Wed Feb 8 22:10:13 2017  
DUMP: Dumping /dev/sda9 (/boot) to /dev/st0  
…  
DUMP: Writing 10 Kilobyte records  
DUMP: mapping (Pass I) [regular files]  
…  
DUMP: Volume 1 started with block 1 at: Wed Feb 8 22:10:13 2017  
DUMP: dumping (Pass III) [directories]  
…  
DUMP: 122150 blocks (119.29MB) on 1 volume(s)  
…  
DUMP: Average transfer rate: 61075 kB/s  
DUMP: DUMP IS DONE  
[root@localhost ~]#*

**3. Incremental backup**

Numerical argument as 2 is Incremental backup and subsequent number represent the incremental backup corresponding to full back.

-u updates the /etc/dumpdates files

*[root@localhost ~]# /sbin/dump -2u -f /dev/st0 /dev/sda9  
DUMP: Date of this level 2 dump: Wed Feb 8 22:14:13 2017  
DUMP: Date of last level 1 dump: Wed Feb 8 22:13:06 2017  
DUMP: Dumping /dev/sda9 (/boot) to /dev/st0  
…  
DUMP: Date of this level 2 dump: Wed Feb 8 22:14:13 2017  
…  
DUMP: DUMP IS DONE*

**4. Backup history**

*[root@localhost ~]# cat /etc/dumpdates  
/dev/sda9 0 Wed Feb 8 22:10:13 2017 -0800  
/dev/sda9 1 Wed Feb 8 22:13:06 2017 -0800  
/dev/sda9 2 Wed Feb 8 22:14:13 2017 -0800  
/dev/sda9 3 Wed Feb 8 22:15:27 2017 -0800  
/dev/sda9 4 Wed Feb 8 22:15:43 2017 -0800  
/dev/sda9 5 Wed Feb 8 22:15:34 2017 -0800*

**5. Important Files related to backup**

/dev/st0  
default tape unit to dump to  
/etc/dumpdates  
dump date records  
/etc/fstab  
dump table: file systems  
/etc/mtab  
dump table: mounted file systems  
/etc/group  
to find group operator

**6. Exit Status**

Dump exits with zero status on success. Startup errors are indicated with an exit code of 1; abnormal termination is indicated with an exit code of 3.

**4. Solaris File System Backup using ufsdump**

**ufsdump features**

1. Used for complete file system backup .  
2. It copies everything from regular files in a file system to special character and block device files.  
2. It can work on mounted or unmounted file systems.

**Identifying the tape device in Solaris**

*dmesg | grep st*

**Checking the status of the tape drive**

*mt -f /dev/rmt/0 status*

**Backup restore and disk copy with ufsdump :**

**Backup file system using ufsdump**

*ufsdump 0cvf /dev/rmt/0 /dev/rdsk/c0t0d0s0  
or  
ufsdump 0cvf /dev/rmt/0 /usr*

**To restore a dump with ufsrestore**

*ufsrestore rvf /dev/rmt/0  
ufsrestore in interactive mode allowing selection of individual files and  
directories using add , ls , cd , pwd and extract commands .  
ufsrestore -i /dev/rmt/0*

**Making a copy of a disk slice using ufsdump**

*ufsdump 0f – /dev/rdsk/c0t0d0s7 |(cd /mnt/backup ;ufsrestore xf -)*

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