1、 实现下表 **dump** 备份场景，观察并分别对比不同备份设备下的 **Full backup** 性能并记录过程与结果：

+----------+-----------+
| From | To |
+----------+-----------+
| var | Linear LV |
+----------+-----------+
| etc | Stripe LV |
+----------+-----------+
| boot | Mirror LV |
+----------+-----------+
| lib | RAID5 Vol |
+----------+-----------+

a、根據題意，使用 dump 對/var 進行備份。

b、接下來四個例子如上所做

```
[root@server ~]# dump -0f /dev/vdj /var
  DUMP: Date of this level 0 dump: Fri Sep 14 11:01:19 2018
  DUMP: Dumping /dev/vda2 (/ (dir var)) to /dev/vdj
  DUMP: Label: none
  DUMP: Writing 10 Kilobyte records
  DUMP: mapping (Pass I) [regular files]
  DUMP: mapping (Pass II) [directories]
  DUMP: estimated 173951 blocks.
  DUMP: Volume 1 started with block 1 at: Fri Sep 14 11:01:19 2018
  DUMP: dumping (Pass III) [directories]
  DUMP: dumping (Pass IV) [regular files]
  DUMP: Closing /dev/vdj
  DUMP: Volume 1 completed at: Fri Sep 14 11:01:26 2018
  DUMP: Volume 1 176430 blocks (172.29MB)
  DUMP: Volume 1 took 0:00:07
  DUMP: Volume 1 transfer rate: 25204 kB/s
  DUMP: 176430 blocks (172.29MB) on 1 volume(s)
  DUMP: finished in 7 seconds, throughput 25204 kBytes/sec
  DUMP: Date of this level 0 dump: Fri Sep 14 11:01:19 2018
  DUMP: Date this dump completed:  Fri Sep 14 11:01:26 2018
  DUMP: Average transfer rate: 25204 kB/s
  DUMP: DUMP IS DONE
```

restore -if /var 查看是否備份成功。

```
[root@server ~]# restore -if /var
restore: Tape read error on first record
[root@server ~]# restore -if /dev/vdj
restore > ls
.:
var/
```

在 restore 壞境下，進到 var 目錄下查看，之後退出去在家目錄下進 var 目錄下查看是否一樣。

```
restore > cd var/
restore > ls
./var:
.updated   crash/    games/    lib/      log/      opt/      spool/    yp/
adm/       db/       gopher/   local/    mail@     preserve/ tmp/
cache/     empty/    kerberos/ lock@     nis/      run@      www/

restore > quit
[root@server ~]# cd /var
[root@server var]# ls
adm     crash   empty   gopher   lib     lock    mail   opt       run    tmp   yp
cache   db      games   kerberos local   log     nis    preserve  spool  www
```

```
[root@server ~]# dump -0f /dev/vdh /etc
  DUMP: Date of this level 0 dump: Fri Sep 14 11:08:16 2018
  DUMP: Dumping /dev/vda2 (/ (dir etc)) to /dev/vdh
  DUMP: Label: none
  DUMP: Writing 10 Kilobyte records
  DUMP: mapping (Pass I) [regular files]
  DUMP: mapping (Pass II) [directories]
  DUMP: estimated 39485 blocks.
  DUMP: Volume 1 started with block 1 at: Fri Sep 14 11:08:16 2018
  DUMP: dumping (Pass III) [directories]
  DUMP: dumping (Pass IV) [regular files]
  DUMP: Closing /dev/vdh
  DUMP: Volume 1 completed at: Fri Sep 14 11:08:20 2018
  DUMP: Volume 1 43740 blocks (42.71MB)
  DUMP: Volume 1 took 0:00:04
  DUMP: Volume 1 transfer rate: 10935 kB/s
  DUMP: 43740 blocks (42.71MB) on 1 volume(s)
  DUMP: finished in 4 seconds, throughput 10935 kBytes/sec
  DUMP: Date of this level 0 dump: Fri Sep 14 11:08:16 2018
  DUMP: Date this dump completed:  Fri Sep 14 11:08:20 2018
  DUMP: Average transfer rate: 10935 kB/s
  DUMP: DUMP IS DONE
```

```
[root@server ~]# restore -if /dev/vdh
restore > ls
.:
etc/

restore > cd /etc
restore > ls
./etc:
.pwd.lock                 hosts.allow              protocols
.updated                  hosts.deny               python/
DIR_COLORS                httpd/                   qemu-ga/
DIR_COLORS.256color       init.d@                  rc.d/
DIR_COLORS.lightbgcolor   inittab                  rc.local@
GREP_COLORS               inputrc                  rc0.d@
GeoIP.conf                iproute2/                rc1.d@
GeoIP.conf.default        issue                    rc2.d@
NetworkManager/           issue.net                rc3.d@
X11/                      kdump.conf               rc4.d@
adjtime                   kernel/                  rc5.d@
aliases                   krb5.conf                rc6.d@
aliases.db                krb5.conf.d/             redhat-release@
alternatives/             ld.so.cache              resolv.conf
anacrontab                ld.so.conf               rmt@
asound.conf               ld.so.conf.d/            rpc
audisp/                   libaudit.conf            rpm/
audit/                    libnl/                   rsyslog.conf
bash_completion.d/        libreport/               rsyslog.d/
bashrc                    libuser.conf             rwtab
binfmt.d/                 locale.conf              rwtab.d/
centos-release            localtime@               sasl2/
centos-release-upstream   login.defs               securetty
chkconfig.d/              logrotate.conf           security/
cron.d/                   logrotate.d/             selinux/
cron.daily/               lvm/                     services
cron.deny                 machine-id               sestatus.conf
cron.hourly/              magic                    shadow
cron.monthly/             mailcap                  shadow-
cron.weekly/              makedumpfile.conf.sample shells
crontab                   man_db.conf              skel/
crypttab                  mdadm.conf               ssh/
csh.cshrc                 mime.types               ssl/
csh.login                 mke2fs.conf              statetab
dbus-1/                   modprobe.d/              statetab.d/
default/                  modules-load.d/          subgid
depmod.d/                 motd                     subuid
dhcp/                     mtab@                    sudo-ldap.conf
dracut.conf               my.cnf                   sudo.conf
dracut.conf.d/            my.cnf.d/                sudoers
dumpdates                 netconfig                sudoers.d/
e2fsck.conf               networks                 sysconfig/
environment               nsswitch.conf            sysctl.conf
ethertypes                nsswitch.conf.bak        sysctl.d/
exports                   openldap/                system-release@
favicon.png@              opt/                     system-release-cpe
filesystems               os-release               systemd/
firewalld/                pam.d/                   terminfo/
fstab                     passwd                   tmpfiles.d/
gcrypt/                   passwd-                  tuned/
gnupg/                    pkcs11/                  udev/
groff/                    pki/                     vconsole.conf
group                     plymouth/                virc
group-                    pm/                      wgetrc
grub.d/                   polkit-1/                wpa_supplicant/
grub2.cfg@                popt.d/                  xdg/
gshadow                   postfix/                 xinetd.d/
gshadow-                  ppp/                     yum/
gss/                      prelink.conf.d/          yum.conf
```

```
restore > quit
[root@server ~]# cd /etc
[root@server etc]# ls
adjtime                      init.d                      python
aliases                      inittab                     qemu-ga
aliases.db                   inputrc                     rc0.d
alternatives                 iproute2                    rc1.d
anacrontab                   issue                       rc2.d
asound.conf                  issue.net                   rc3.d
audisp                       kdump.conf                  rc4.d
audit                        kernel                      rc5.d
bash_completion.d            krb5.conf                   rc6.d
bashrc                       krb5.conf.d                 rc.d
binfmt.d                     ld.so.cache                 rc.local
centos-release               ld.so.conf                  redhat-release
centos-release-upstream      ld.so.conf.d                resolv.conf
chkconfig.d                  libaudit.conf               rmt
cron.d                       libnl                       rpc
cron.daily                   libreport                   rpm
cron.deny                    libuser.conf                rsyslog.conf
cron.hourly                  locale.conf                 rsyslog.d
cron.monthly                 localtime                   rwtab
crontab                      login.defs                  rwtab.d
cron.weekly                  logrotate.conf              sasl2
crypttab                     logrotate.d                 securetty
csh.cshrc                    lvm                         security
csh.login                    machine-id                  selinux
dbus-1                       magic                       services
default                      mailcap                     sestatus.conf
depmod.d                     makedumpfile.conf.sample    shadow
dhcp                         man_db.conf                 shadow-
DIR_COLORS                   mdadm.conf                  shells
DIR_COLORS.256color          mime.types                  skel
DIR_COLORS.lightbgcolor      mke2fs.conf                 ssh
dracut.conf                  modprobe.d                  ssl
dracut.conf.d                modules-load.d              statetab
dumpdates                    motd                        statetab.d
e2fsck.conf                  mtab                        subgid
environment                  my.cnf                      subuid
ethertypes                   my.cnf.d                    sudo.conf
exports                      netconfig                   sudoers
favicon.png                  NetworkManager              sudoers.d
filesystems                  networks                    sudo-ldap.conf
firewalld                    nsswitch.conf               sysconfig
fstab                        nsswitch.conf.bak           sysctl.conf
gcrypt                       openldap                    sysctl.d
GeoIP.conf                   opt                         systemd
GeoIP.conf.default           os-release                  system-release
gnupg                        pam.d                       system-release-cpe
GREP_COLORS                  passwd                      terminfo
groff                        passwd-                     tmpfiles.d
group                        pkcs11                      tuned
group-                       pki                         udev
grub2.cfg                    plymouth                    vconsole.conf
grub.d                       pm                          virc
gshadow                      polkit-1                    wgetrc
gshadow-                     popt.d                      wpa_supplicant
gss                          postfix                     X11
host.conf                    ppp                         xdg
hostname                     prelink.conf.d              xinetd.d
hosts                        printcap                    yum
hosts.allow                  profile                     yum.conf
hosts.deny                   profile.d                   yum.repos.d
httpd                        protocols
[root@server etc]#
```

```
[root@server ~]# cp -R /home/user/boot /boot
[root@server ~]# ls /boot
boot   lost+found
[root@server ~]# ls /boot/boot
config-3.10.0-693.el7.x86_64
efi
grub
grub2
initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img
initramfs-3.10.0-693.el7.x86_64.img
initrd-plymouth.img
symvers-3.10.0-693.el7.x86_64.gz
System.map-3.10.0-693.el7.x86_64
vmlinuz-0-rescue-47b99ec655f14ad79581ced5a859a2fc
vmlinuz-3.10.0-693.el7.x86_64
```

```
[root@server ~]# mkfs.ext4 /dev/vdl
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
1966080 inodes, 7864320 blocks
393216 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2155872256
240 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

[root@server ~]# mount /dev/vdl /boot
[root@server ~]# df -hT
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/vda2       ext4       94G  1.4G   88G   2% /
devtmpfs        devtmpfs  2.0G     0  2.0G   0% /dev
tmpfs           tmpfs     2.0G     0  2.0G   0% /dev/shm
tmpfs           tmpfs     2.0G  8.5M  2.0G   1% /run
tmpfs           tmpfs     2.0G     0  2.0G   0% /sys/fs/cgroup
tmpfs           tmpfs     396M     0  396M   0% /run/user/0
/dev/vdl        ext4       30G   45M   28G   1% /boot
```

```
[root@server boot]# dump -0f /dev/vg/lv /boot
  DUMP: Date of this level 0 dump: Fri Sep 14 18:37:58 2018
  DUMP: Dumping /dev/vdh (/boot) to /dev/vg/lv
  DUMP: Label: none
  DUMP: Writing 10 Kilobyte records
  DUMP: mapping (Pass I) [regular files]
  DUMP: mapping (Pass II) [directories]
  DUMP: estimated 90111 blocks.
  DUMP: Volume 1 started with block 1 at: Fri Sep 14 18:37:58 2018
  DUMP: dumping (Pass III) [directories]
  DUMP: dumping (Pass IV) [regular files]
  DUMP: Closing /dev/vg/lv
  DUMP: Volume 1 completed at: Fri Sep 14 18:38:01 2018
  DUMP: Volume 1 90710 blocks (88.58MB)
  DUMP: Volume 1 took 0:00:03
  DUMP: Volume 1 transfer rate: 30236 kB/s
  DUMP: 90710 blocks (88.58MB) on 1 volume(s)
  DUMP: finished in 2 seconds, throughput 45355 kBytes/sec
  DUMP: Date of this level 0 dump: Fri Sep 14 18:37:58 2018
  DUMP: Date this dump completed:  Fri Sep 14 18:38:01 2018
  DUMP: Average transfer rate: 30236 kB/s
  DUMP: DUMP IS DONE
[root@server boot]# restore - if /dev/vdh
restore: none of C, i, R, r, t or x options specified
[root@server boot]# restore - if /dev/vg/lv
restore: none of C, i, R, r, t or x options specified
[root@server boot]# restore if /dev/vg/lv
restore > ls
.:
System.map-3.10.0-693.el7.x86_64
config-3.10.0-693.el7.x86_64
efi/
grub/
grub2/
initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img
initramfs-3.10.0-693.el7.x86_64.img
```

```
restore > q
[root@server boot]# ls
config-3.10.0-693.el7.x86_64
efi
grub
grub2
initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img
initramfs-3.10.0-693.el7.x86_64.img
initrd-plymouth.img
symvers-3.10.0-693.el7.x86_64.gz
System.map-3.10.0-693.el7.x86_64
vmlinuz-0-rescue-47b99ec655f14ad79581ced5a859a2fc
vmlinuz-3.10.0-693.el7.x86_64
[root@server boot]#
```



```
[root@server ~]# restore -if /dev/vdd
restore > cd /usr/lib
restore > ls
./usr/lib:
NetworkManager/    gcc/              modules-load.d/    systemd/
binfmt.d/          grub/             polkit-1/          tmpfiles.d/
cpp@               kbd/              python2.7/         tuned/
debug/             kdump/            rpm/               udev/
dracut/            kernel/           sendmail@          yum-plugins/
firewalld/         locale/           sendmail.postfix@
firmware/          modprobe.d/       sse2/
games/             modules/          sysctl.d/

restore > quit
[root@server ~]# cd /lib
[root@server lib]# ls
binfmt.d    firmware   kdump        modules-load.d   sendmail          tmpfiles.d
cpp         games      kernel       NetworkManager   sendmail.postfix  tuned
debug       gcc        locale       polkit-1         sse2              udev
dracut      grub       modprobe.d   python2.7        sysctl.d          yum-plugins
firewalld   kbd        modules      rpm              systemd
```

2、完全解开/boot/initramfs-x.xxx.img 文件内容并放置到/boot/test 目录内，将 **/boot/test/bin** 下所有文件标纪为 **nodump**，依据上表备份结果对 **boot** 目录进行增量备份，记录过程与结果。

a、進到/boot/boot/目錄下創建一個 test 目錄，將/boot/initramfs-x.xxx.img 文件拷貝到 test 目錄下。進行解壓以及完全解包。如下圖。

```
[root@server ~]# cd /boot/boot/
[root@server boot]# ls
config-3.10.0-693.el7.x86_64
efi
grub
grub2
initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img
initramfs-3.10.0-693.el7.x86_64.img
initrd-plymouth.img
symvers-3.10.0-693.el7.x86_64.gz
System.map-3.10.0-693.el7.x86_64
test
vmlinuz-0-rescue-47b99ec655f14ad79581ced5a859a2fc
vmlinuz-3.10.0-693.el7.x86_64
[root@server boot]# cp initramfs-3.10.0-693.el7.x86_64.img /boot/boot/test/
[root@server boot]# cd test
[root@server test]# ls
initramfs-3.10.0-693.el7.x86_64.img
[root@server test]# mv initramfs-3.10.0-693.el7.x86_64.img initramfs-3.10.0-693.el7.x86_64.gz
[root@server test]# ls
initramfs-3.10.0-693.el7.x86_64.gz
[root@server test]# gz
-bash: gz: command not found
[root@server test]# gunzip initramfs-3.10.0-693.el7.x86_64.gz
[root@server test]# ls
initramfs-3.10.0-693.el7.x86_64
[root@server test]# cpio -i < initramfs-3.10.0-693.el7.x86_64
75536 blocks
[root@server test]# ls
bin  init                            lib64  run       sys       usr
dev  initramfs-3.10.0-693.el7.x86_64 proc   sbin      sysroot   var
etc  lib                             root   shutdown  tmp
```

```
[root@server test]# chattr +d /boot/boot/test/bin/*
chattr: Operation not supported while reading flags on /boot/boot/test/bin/awk
chattr: Operation not supported while reading flags on /boot/boot/test/bin/loginct
chattr: Operation not supported while reading flags on /boot/boot/test/bin/sh
```

用 lsattr ./bin/*查看是否所有文件都標示了 nodump，顯示 d 成功。

```
[root@server test]# lsattr ./bin/*
lsattr: Operation not supported While reading flags on ./bin/awk
------d------e-- ./bin/bash
------d------e-- ./bin/cat
------d------e-- ./bin/cp
------d------e-- ./bin/dmesg
------d------e-- ./bin/dracut-cmdline
------d------e-- ./bin/dracut-cmdline-ask
------d------e-- ./bin/dracut-emergency
------d------e-- ./bin/dracut-initqueue
------d------e-- ./bin/dracut-mount
------d------e-- ./bin/dracut-pre-mount
------d------e-- ./bin/dracut-pre-pivot
------d------e-- ./bin/dracut-pre-trigger
------d------e-- ./bin/dracut-pre-udev
------d------e-- ./bin/echo
------d------e-- ./bin/findmnt
------d------e-- ./bin/flock
------d------e-- ./bin/gawk
------d------e-- ./bin/grep
------d------e-- ./bin/gzip
------d------e-- ./bin/journalctl
------d------e-- ./bin/kbd_mode
------d------e-- ./bin/kmod
------d------e-- ./bin/less
------d------e-- ./bin/ln
------d------e-- ./bin/loadkeys
lsattr: Operation not supported While reading flags on ./bin/loginctl
------d------e-- ./bin/ls
------d------e-- ./bin/mkdir
------d------e-- ./bin/mkfifo
------d------e-- ./bin/mknod
------d------e-- ./bin/mount
------d------e-- ./bin/mv
------d------e-- ./bin/ping
------d------e-- ./bin/plymouth
------d------e-- ./bin/ps
------d------e-- ./bin/readlink
------d------e-- ./bin/rm
------d------e-- ./bin/sed
------d------e-- ./bin/setfont
------d------e-- ./bin/setsid
lsattr: Operation not supported While reading flags on ./bin/sh
------d------e-- ./bin/sleep
------d------e-- ./bin/stat
------d------e-- ./bin/stty
------d------e-- ./bin/systemctl
------d------e-- ./bin/systemd-cgls
------d------e-- ./bin/systemd-escape
------d------e-- ./bin/systemd-run
------d------e-- ./bin/systemd-tmpfiles
------d------e-- ./bin/teamd
------d------e-- ./bin/teamdctl
------d------e-- ./bin/teamnl
------d------e-- ./bin/tr
------d------e-- ./bin/true
------d------e-- ./bin/udevadm
------d------e-- ./bin/umount
------d------e-- ./bin/uname
------d------e-- ./bin/vi
[root@server test]#
```

```
[root@server boot]# dump -1f /dev/vg/lv /boot/
  DUMP: WARNING: There is no inferior level dump on this filesystem
  DUMP: WARNING: Assuming a level 0 dump by default
  DUMP: Date of this level 0 dump: Fri Sep 14 18:49:19 2018
  DUMP: Dumping /dev/vdh (/boot) to /dev/vg/lv
  DUMP: Label: none
  DUMP: Writing 10 Kilobyte records
  DUMP: mapping (Pass I) [regular files]
  DUMP: mapping (Pass II) [directories]
  DUMP: estimated 90114 blocks.
  DUMP: Volume 1 started with block 1 at: Fri Sep 14 18:49:19 2018
  DUMP: dumping (Pass III) [directories]
  DUMP: dumping (Pass IV) [regular files]
  DUMP: Closing /dev/vg/lv
  DUMP: Volume 1 completed at: Fri Sep 14 18:49:21 2018
  DUMP: Volume 1 90720 blocks (88.59MB)
  DUMP: Volume 1 took 0:00:02
  DUMP: Volume 1 transfer rate: 45360 kB/s
  DUMP: 90720 blocks (88.59MB) on 1 volume(s)
  DUMP: finished in 1 seconds, throughput 90720 kBytes/sec
  DUMP: Date of this level 0 dump: Fri Sep 14 18:49:19 2018
  DUMP: Date this dump completed:  Fri Sep 14 18:49:21 2018
  DUMP: Average transfer rate: 45360 kB/s
  DUMP: DUMP IS DONE
```

```
[root@server boot]# restore -if /dev/vg/lv
restore > ls
.:
System.map-3.10.0-693.el7.x86_64
config-3.10.0-693.el7.x86_64
efi/
grub/
grub2/
initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img
initramfs-3.10.0-693.el7.x86_64.img
initrd-plymouth.img
symvers-3.10.0-693.el7.x86_64.gz
test/
vmlinuz-0-rescue-47b99ec655f14ad79581ced5a859a2fc
vmlinuz-3.10.0-693.el7.x86_64

restore > █
```

3、删除/boot/test 目录，然后将所有 boot 目录的备份还原至当前 boot 目录，记录过程与结果。

```
[root@server ~]# rm -fr /boot/test
[root@server ~]# ls /boot/test
ls: cannot access /boot/test: No such file or directory
[root@server ~]# restore -if /dev/vg/lv
restore > add /boot/test
./boot/test is not on the tape
restore > add /test
restore > ls
.:
 System.map-3.10.0-693.el7.x86_64
 config-3.10.0-693.el7.x86_64
 efi/
 grub/
 grub2/
 initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img
 initramfs-3.10.0-693.el7.x86_64.img
 initrd-plymouth.img
 symvers-3.10.0-693.el7.x86_64.gz
*test/
 vmlinuz-0-rescue-47b99ec655f14ad79581ced5a859a2fc
 vmlinuz-3.10.0-693.el7.x86_64
```

```
[root@server boot]# restore rf /dev/vg/lv ./
restore: ./efi: File exists
restore: ./efi/EFI: File exists
restore: ./efi/EFI/centos: File exists
restore: ./grub: File exists
restore: ./grub2: File exists
restore: ./grub2/i386-pc: File exists
restore: ./grub2/locale: File exists
restore: ./grub2/fonts: File exists
[root@server boot]# ls
config-3.10.0-693.el7.x86_64                              restoresymtable
efi                                                       symvers-3.10.0-693.el7.x86_64.gz
grub                                                      System.map-3.10.0-693.el7.x86_64
grub2                                                     test
initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img  vmlinuz-0-rescue-47b99ec655f14ad79581ced5a859a2fc
initramfs-3.10.0-693.el7.x86_64.img                      vmlinuz-3.10.0-693.el7.x86_64
initrd-plymouth.img
[root@server boot]# restore -if /dev/vg/lv
restore > ls
.:
System.map-3.10.0-693.el7.x86_64
config-3.10.0-693.el7.x86_64
efi/
grub/
grub2/
```

4、将 boot 目录增量备份内容中/boot/test/lib 所有内容还原至/root/test 目录，记录过程
与结果。

```
[root@server test]# ls
test
[root@server test]# cd test/
[root@server test]# ks
-bash: ks: command not found
[root@server test]# ls
usr
[root@server test]# cd usr/
[root@server usr]# ls
lib
[root@server usr]# cd ..
[root@server test]# cd ..
[root@server test]# cd ..
[root@server ~]# rm -rf test
[root@server ~]# ls
888                           demo.txt                                                  symvers-3.10.0-693.el7.x86_64.gz
999                           efi                                                       System.map-3.10.0-693.el7.x86_64
aaa                           grub                                                      tangshi
addusers                      grub2                                                     tangshi.zip
adduserss                     httpd-2.4.6-67.el7.centos.x86_64.rpm                      temp
anaconda-ks.cfg               httpd-tools-2.4.6-67.el7.centos.x86_64.rpm                test.txt
apr-1.4.8-3.el7.x86_64.rpm    httpd-tools-2.4.6-67.el7.centos.x86_64.rpm.1              test.txtc
apr-util-1.5.2-6.el7.x86_64.rpm  initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img  user
bwm-ng-0.6.1                  initramfs-3.10.0-693.el7.x86_64.gz                        user1
bwm-ng-0.6.1.tar.gz           initramfs-3.10.0-693.el7.x86_64.img                       user2
cinder.conf                   initrd-plymouth.img                                       user3
cinder.conf.new               __MACOSX                                                  vmlinuz-0-rescue-47b99ec655f14ad79581ced5a859a2fc
config-3.10.0-693.el7.x86_64  mailcap-2.1.41-2.el7.noarch.rpm                           vmlinuz-3.10.0-693.el7.x86_64
dayu.tar                      restoresymtable
```

```
[root@server ~]# restore -xf /dev/vg/lv ./test/lib
You have not read any volumes yet.
Unless you know which volume your file(s) are on you should start
with the last volume and work towards the first.
Specify next volume # (none if no more volumes): 1
set owner/mode for '.'? [yn] y
[root@server ~]# ls
888                           demo.txt                                                  symvers-3.10.0-693.el7.x86_64.gz
999                           efi                                                       System.map-3.10.0-693.el7.x86_64
aaa                           grub                                                      tangshi
addusers                      grub2                                                     tangshi.zip
adduserss                     httpd-2.4.6-67.el7.centos.x86_64.rpm                      temp
anaconda-ks.cfg               httpd-tools-2.4.6-67.el7.centos.x86_64.rpm                test
apr-1.4.8-3.el7.x86_64.rpm    httpd-tools-2.4.6-67.el7.centos.x86_64.rpm.1              test.txt
apr-util-1.5.2-6.el7.x86_64.rpm  initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img  test.txtc
bwm-ng-0.6.1                  initramfs-3.10.0-693.el7.x86_64.gz                        user
bwm-ng-0.6.1.tar.gz           initramfs-3.10.0-693.el7.x86_64.img                       user1
cinder.conf                   initrd-plymouth.img                                       user2
cinder.conf.new               __MACOSX                                                  user3
config-3.10.0-693.el7.x86_64  mailcap-2.1.41-2.el7.noarch.rpm                           vmlinuz-0-rescue-47b99ec655f14ad79581ce
dayu.tar                      restoresymtable                                           vmlinuz-3.10.0-693.el7.x86_64
[root@server ~]# cd test
[root@server test]# ls
lib
[root@server test]# ll
total 0
lrwxrwxrwx. 1 root root 7 9月  14 19:53 lib -> usr/lib
[root@server test]# cd ..
[root@server ~]# rm -fr test
[root@server ~]# restore -xf /dev/vg/lv ./usr/test/lib
./usr/test/lib is not on the tape
You have not read any volumes yet.
Unless you know which volume your file(s) are on you should start
with the last volume and work towards the first.
Specify next volume # (none if no more volumes): 1
set owner/mode for '.'? [yn] y
```

```
[root@server ~]# restore -xf /dev/vg/lv ./test/usr/lib
You have not read any volumes yet.
Unless you know which volume your file(s) are on you should start
with the last volume and work towards the first.
Specify next volume # (none if no more volumes): 1
set owner/mode for '.'? [yn] y
[root@server ~]# ls
888                             demo.txt                        symvers-3.10.0-693.el7.x86_64.gz
999                             efi                             System.map-3.10.0-693.el7.x86_64
aaa                             grub                            tangshi
addusers                        grub2                           tangshi.zip
adduserss                       httpd-2.4.6-67.el7.centos.x86_64.rpm        temp
anaconda-ks.cfg                 httpd-tools-2.4.6-67.el7.centos.x86_64.rpm  test
apr-1.4.8-3.el7.x86_64.rpm      httpd-tools-2.4.6-67.el7.centos.x86_64.rpm.1  test.txt
apr-util-1.5.2-6.el7.x86_64.rpm initramfs-0-rescue-47b99ec655f14ad79581ced5a859a2fc.img  test.txtc
pwm-ng-0.6.1                    initramfs-3.10.0-693.el7.x86_64.gz          user
pwm-ng-0.6.1.tar.gz             initramfs-3.10.0-693.el7.x86_64.img         user1
cinder.conf                     initrd-plymouth.img                         user2
cinder.conf.new                 __MACOSX                                    user3
config-3.10.0-693.el7.x86_64    mailcap-2.1.41-2.el7.noarch.rpm             vmlinuz-0-rescue-47b99ec655f14ad79581ced5a859a2fc
dayu.tar                        restoresymtable                             vmlinuz-3.10.0-693.el7.x86_64
[root@server ~]# cd test
[root@server test]# ls
usr
[root@server test]# cd usr
[root@server usr]# ls
lib
[root@server usr]# cd lib
[root@server lib]# ls
dracut  dracut-lib.sh  fs-lib.sh  kbd  modprobe.d  modules  net-lib.sh  sysctl.d  systemd  tmpfiles.d  udev
[root@server lib]#
```