磁盘一分区要求：采用 msdos 分区表、划分 6 个分区、第一个分区需包含引导标识、第一分区格式化成 ext4、剩余分区格式化成 xfs、在根目录下创建公共目录 temp 并在其下创建 msdos1-msdos6 六个子目录、将六个分区依次挂载，观察记录操作过程和结果；

1、 在根目录下创建公共目录 temp 并在其下创建 msdos1-msdos6 六个子目录。

```
[root@localhost /]# mkdir temp
[root@localhost /]# cd /temp/
[root@localhost temp]# mkdir msdos1
[root@localhost temp]# mkdir msdos2
[root@localhost temp]# mkdir msdos3
[root@localhost temp]# mkdir msdos4
[root@localhost temp]# mkdir msdos5
[root@localhost temp]# mkdir msdos6
[root@localhost temp]# ll
total 0
drwxr-xr-x. 2 root root 6 九月   7 03:48 msdos1
drwxr-xr-x. 2 root root 6 九月   7 03:48 msdos2
drwxr-xr-x. 2 root root 6 九月   7 03:48 msdos3
drwxr-xr-x. 2 root root 6 九月   7 03:48 msdos4
drwxr-xr-x. 2 root root 6 九月   7 03:48 msdos5
drwxr-xr-x. 2 root root 6 九月   7 03:48 msdos6
[root@localhost temp]#
```

2、更改用户属组。

```
[root@localhost ~]# usermod -G user root
[root@localhost ~]# cat /etc/group
group   group-
[root@localhost ~]# cat /etc/group
root:x:0:
bin:x:1:
daemon:x:2:
sys:x:3:
adm:x:4:
tty:x:5:
disk:x:6:
lp:x:7:
mem:x:8:
kmem:x:9:
wheel:x:10:
cdrom:x:11:
mail:x:12:postfix
man:x:15:
dialout:x:18:
floppy:x:19:
games:x:20:
tape:x:33:
video:x:39:
ftp:x:50:
lock:x:54:
audio:x:63:
nobody:x:99:
users:x:100:
utmp:x:22:
utempter:x:35:
input:x:999:
systemd-journal:x:190:
systemd-network:x:192:
dbus:x:81:
polkitd:x:998:
ssh_keys:x:997:
sshd:x:74:
postdrop:x:90:
postfix:x:89:
chrony:x:996:
user01:x:1001:
user02:x:1002:
user03:x:1003:
user04:x:1004:
user05:x:1005:
user06:x:1006:
user:x:1007:user01,user02,user03,user04,user05,user06,root
```

3、用 vi 配置/etc/sudoers/

```
[root@localhost temp]# vi /etc/sudoers
[root@localhost temp]#
```

```
root     ALL=(ALL)        ALL
user01   ALL=/sbin/fdisk
user02   ALL=/sbin/mkfs, /sbin/mkfs.xfs
user03   ALL=/bin/mount
```

4、切换到 user01，输入 sudo fdisk /dev/vdb 进行分区。

```
-sh-4.2$ whoami
user01
-sh-4.2$ sudo fdisk /dev/vdb
Welcome to fdisk (util-linux 2.23.2).

Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help): p

Disk /dev/vdb: 10.7 GB, 10737418240 bytes, 20971520 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0xbd349498

   Device Boot      Start         End      Blocks   Id  System
```

5、msdos 分区完成。

```
   Device Boot      Start         End      Blocks   Id  System
/dev/vdb1           2048     2099199     1048576   83  Linux
/dev/vdb2        2099200     4196351     1048576   83  Linux
/dev/vdb3        4196352     6293503     1048576   83  Linux
/dev/vdb4        6293504     8390655     1048576    5  Extended
/dev/vdb5        6295552     6500351      102400   83  Linux
/dev/vdb6        6502400     6707199      102400   83  Linux
/dev/vdb7        6709248     8390655      840704   83  Linux

Command (m for help): w
```

6、切换 user02，执行 sudo mkfs.ext4 /dev/vdb1 写入文件系统。

```
-sh-4.2$ whoami
user02
-sh-4.2$ sudo mkfs.ext4 /dev/vdb1
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
65536 inodes, 262144 blocks
13107 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=268435456
8 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376

Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done
```

7、在 user02 用户下分次执行 sudo mkfs.xfs -f /dev/vdb1-7，/dev/vdb4/，扩展分区除外。

```
-sh-4.2$ whoami
user02
-sh-4.2$ sudo mkfs.xfs -f /dev/vdb2
meta-data=/dev/vdb2              isize=512    agcount=4, agsize=65536 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=262144, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$
```

```
-sh-4.2$ whoami
user02
-sh-4.2$ sudo mkfs.xfs -f /dev/vdb5
meta-data=/dev/vdb5              isize=512    agcount=4, agsize=6400 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=25600, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=855, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$
```

```
-sh-4.2$ whoami
user02
-sh-4.2$ sudo mkfs.xfs -f /dev/vdb6
meta-data=/dev/vdb6              isize=512    agcount=4, agsize=6400 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=25600, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=855, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$
-sh-4.2$
```

```
-sh-4.2$ whoami
user02
-sh-4.2$ sudo mkfs.xfs -f /dev/vdb7
meta-data=/dev/vdb7              isize=512    agcount=4, agsize=52544 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=210176, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=855, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$
```

8、切换 user03，执行 sudo mount /dev/vdb1-7，完成挂载。

```
-sh-4.2$ whoami
user03
-sh-4.2$ sudo mount /dev/vdb1 /temp/msdos1/
[sudo] password for user03:
-sh-4.2$ sudo mount /dev/vdb2 /temp/msdos2/
-sh-4.2$ sudo mount /dev/vdb3 /temp/msdos3/
-sh-4.2$ sudo mount /dev/vdb5 /temp/msdos4/
-sh-4.2$ sudo mount /dev/vdb6 /temp/msdos5/
-sh-4.2$ sudo mount /dev/vdb7 /temp/msdos6/
-sh-4.2$ lsblk
NAME            MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sr0              11:0    1  1024M  0 rom
vda             252:0    0    20G  0 disk
├─vda1          252:1    0     1G  0 part /boot
└─vda2          252:2    0    19G  0 part
  ├─centos-root 253:0    0    17G  0 lvm  /
  └─centos-swap 253:1    0     2G  0 lvm  [SWAP]
vdb             252:16   0    10G  0 disk
├─vdb1          252:17   0     1G  0 part /temp/msdos1
├─vdb2          252:18   0     1G  0 part /temp/msdos2
├─vdb3          252:19   0     1G  0 part /temp/msdos3
├─vdb4          252:20   0     1K  0 part
├─vdb5          252:21   0   100M  0 part /temp/msdos4
├─vdb6          252:22   0   100M  0 part /temp/msdos5
└─vdb7          252:23   0   821M  0 part /temp/msdos6
vdc             252:32   0    10G  0 disk
-sh-4.2$ df -hT
Filesystem              Type     Size  Used Avail Use% Mounted on
/dev/mapper/centos-root xfs       17G  981M   17G   6% /
devtmpfs                devtmpfs 908M     0  908M   0% /dev
tmpfs                   tmpfs    920M     0  920M   0% /dev/shm
tmpfs                   tmpfs    920M  8.6M  911M   1% /run
tmpfs                   tmpfs    920M     0  920M   0% /sys/fs/cgroup
/dev/vda1               xfs     1014M  143M  872M  15% /boot
tmpfs                   tmpfs    184M     0  184M   0% /run/user/0
/dev/vdb1               ext4     976M  2.6M  907M   1% /temp/msdos1
/dev/vdb2               xfs     1014M   33M  982M   4% /temp/msdos2
/dev/vdb3               xfs     1014M   33M  982M   4% /temp/msdos3
/dev/vdb5               xfs       97M  5.2M   92M   6% /temp/msdos4
/dev/vdb6               xfs       97M  5.2M   92M   6% /temp/msdos5
/dev/vdb7               xfs      818M   33M  786M   4% /temp/msdos6
-sh-4.2$
```

磁盘二分区要求：采用 gpt 分区表、划分 6 个分区、都格式化为 xfs、在上题所建公共目录下继续创建子目录 gpt1-gpt6、将六个分区依次挂载，观察记录操作过程和结果；

1、在公共目录下继续创建子目录 gpt1-gpt6、

```
[root@localhost temp]# mkdir gpt1
[root@localhost temp]# mkdir gpt2
[root@localhost temp]# mkdir gpt3
[root@localhost temp]# mkdir gpt4
[root@localhost temp]# mkdir gpt5
[root@localhost temp]# mkdir gpt6
[root@localhost temp]# ll
total 4
drwxr-xr-x. 2 root root    6 九月  7 04:51 gpt1
drwxr-xr-x. 2 root root    6 九月  7 04:51 gpt2
drwxr-xr-x. 2 root root    6 九月  7 04:51 gpt3
drwxr-xr-x. 2 root root    6 九月  7 04:51 gpt4
drwxr-xr-x. 2 root root    6 九月  7 04:51 gpt5
drwxr-xr-x. 2 root root    6 九月  7 04:52 gpt6
drwxr-xr-x. 3 root root 4096 九月  7 04:39 msdos1
drwxr-xr-x. 2 root root    6 九月  7 04:39 msdos2
drwxr-xr-x. 2 root root    6 九月  7 04:40 msdos3
drwxr-xr-x. 2 root root    6 九月  7 04:40 msdos4
drwxr-xr-x. 2 root root    6 九月  7 04:40 msdos5
drwxr-xr-x. 2 root root    6 九月  7 04:40 msdos6
[root@localhost temp]#
```

2、切换 user01，执行 sudo fdisk /dev/vdc/ 进行分区。输入选择 g 选择 gpt 分区。

```
-sh-4.2$ whoami
user01
-sh-4.2$ sudo fdisk /dev/vdc
WARNING: fdisk GPT support is currently new, and therefore in an experimental phase. Use at your own discretion.
Welcome to fdisk (util-linux 2.23.2).

Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help): p

Disk /dev/vdc: 10.7 GB, 10737418240 bytes, 20971520 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: gpt
Disk identifier: 0A9F9F30-B6E8-4C28-89DB-67EEF5729062


#         Start          End    Size  Type            Name

Command (m for help): g
Building a new GPT disklabel (GUID: D90ADB7A-44DA-42A3-9A38-0BDB0008A421)


Command (m for help): n
Partition number (1-128, default 1): 1
First sector (2048-20971486, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-20971486, default 20971486): +1G
Created partition 1
```

3、输出列表，w 保持，创建分区完成。

```
Command (m for help): p

Disk /dev/vdc: 10.7 GB, 10737418240 bytes, 20971520 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: gpt
Disk identifier: D90ADB7A-44DA-42A3-9A38-0BDB0008A421


#         Start          End    Size  Type            Name
 1         2048       2099199    1G   Linux filesyste
 2      2099200       4196351    1G   Linux filesyste
 3      4196352       6293503    1G   Linux filesyste
 4      6293504       8390655    1G   Linux filesyste
 5      8390656      10487807    1G   Linux filesyste
 6     10487808      20971486    5G   Linux filesyste

Command (m for help): w
```

4、切换 user02，分次执行 sudo mkfs.xfs -f /dev/vdc1-6

```
-sh-4.2$ whoami
user02
-sh-4.2$ sudo mkfs.xfs -f /dev/vdc1
meta-data=/dev/vdc1              isize=512    agcount=4, agsize=65536 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=262144, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$ sudo mkfs.xfs -f /dev/vdc2
meta-data=/dev/vdc2              isize=512    agcount=4, agsize=65536 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=262144, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$ sudo mkfs.xfs -f /dev/vdc3
meta-data=/dev/vdc3              isize=512    agcount=4, agsize=65536 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=262144, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$ sudo mkfs.xfs -f /dev/vdc4
meta-data=/dev/vdc4              isize=512    agcount=4, agsize=65536 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=262144, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$ sudo mkfs.xfs -f /dev/vdc5
meta-data=/dev/vdc5              isize=512    agcount=4, agsize=65536 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=262144, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$ sudo mkfs.xfs -f /dev/vdc6
meta-data=/dev/vdc6              isize=512    agcount=4, agsize=327615 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=1310459, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
-sh-4.2$
```

5、创建分区列表完成。

```
vdc              252:32   0   10G  0 disk
├─vdc1           252:33   0    1G  0 part /temp/gpt1
├─vdc2           252:34   0    1G  0 part /temp/gpt2
├─vdc3           252:35   0    1G  0 part /temp/gpt3
├─vdc4           252:36   0    1G  0 part /temp/gpt4
├─vdc5           252:37   0    1G  0 part /temp/gpt5
└─vdc6           252:38   0    5G  0 part /temp/gpt6
[root@localhost ~]#
```

6、切换 user03 用户，分次执行 sudo mount /dev/vdc1-6 /temp/gpt1-6

```
-sh-4.2$ whoami
user03
-sh-4.2$ sudo mount /dev/vdc1 /temp/gpt1
-sh-4.2$ sudo mount /dev/vdc2 /temp/gpt2
-sh-4.2$ sudo mount /dev/vdc3 /temp/gpt3
-sh-4.2$ sudo mount /dev/vdc4 /temp/gpt4
-sh-4.2$ sudo mount /dev/vdc5 /temp/gpt5
-sh-4.2$ sudo mount /dev/vdc6 /temp/gpt6
-sh-4.2$
```

7、挂载分区完成。

```
[root@localhost /]# df -hT
Filesystem              Type      Size  Used  Avail  Use%  Mounted on
/dev/mapper/centos-root xfs        17G  981M    17G    6%  /
devtmpfs                devtmpfs  908M     0   908M    0%  /dev
tmpfs                   tmpfs     920M     0   920M    0%  /dev/shm
tmpfs                   tmpfs     920M  8.7M   911M    1%  /run
tmpfs                   tmpfs     920M     0   920M    0%  /sys/fs/cgroup
/dev/vda1               xfs      1014M  143M   872M   15%  /boot
tmpfs                   tmpfs     184M     0   184M    0%  /run/user/0
/dev/vdb1               ext4      976M  2.6M   907M    1%  /temp/msdos1
/dev/vdb2               xfs      1014M   33M   982M    4%  /temp/msdos2
/dev/vdb3               xfs      1014M   33M   982M    4%  /temp/msdos3
/dev/vdb5               xfs        97M  5.2M    92M    6%  /temp/msdos4
/dev/vdb6               xfs        97M  5.2M    92M    6%  /temp/msdos5
/dev/vdb7               xfs       818M   33M   786M    4%  /temp/msdos6
/dev/vdc1               xfs      1014M   33M   982M    4%  /temp/gpt1
/dev/vdc2               xfs      1014M   33M   982M    4%  /temp/gpt2
/dev/vdc3               xfs      1014M   33M   982M    4%  /temp/gpt3
/dev/vdc4               xfs      1014M   33M   982M    4%  /temp/gpt4
/dev/vdc5               xfs      1014M   33M   982M    4%  /temp/gpt5
/dev/vdc6               xfs       5.0G   33M   5.0G    1%  /temp/gpt6
```