



# 南昌大学实验报告

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实验类型：☒ 验证 ☐ 综合 ☐ 设计 ☐ 创新 实验日期：\_\_2021/10/6\_\_ 实验成绩：\_\_

## 一、 实验项目名称

Linux 文件系统

## 二、 实验目的

1. 了解基本术语的含义。
2. 掌握目录和文件的操作。
3. 掌握文件权限的设置。

## 三、 实验要求

要求使用 Xshell 进行登录，具体操作如下：

1. 在 dev 目录中任意选择一个文件，查看该文件的类型。

```
10.252.194.123:22 - root@localhost:~ - Xshell 6
文件(F) 编辑(E) 查看(V) 工具(T) 选项卡(B) 窗口(W) 帮助(H)
ssh://root@10.252.194.123:22
要添加当前会话，点击左侧的箭头按钮。
会话管理器
所有会话
Aliyun
centOs7
HuaWei
Last
cp: 是否覆盖 "/root/dingjun/share/doc/libgcc-4.8.5/COPYING"?
cp: 是否覆盖 "/root/dingjun/share/doc/libgcc-4.8.5/COPYING.LIB"?
cp: 是否覆盖 "/root/dingjun/share/doc/libgcc-4.8.5/COPYING.RUNTIME"?
cp: 是否覆盖 "/root/dingjun/share/doc/libgcc-4.8.5/COPYING3"?
cp: 是否覆盖 "/root/dingjun/share/doc/libgcc-4.8.5/COPYING3.LIB"?
cp: 是否覆盖 "/root/dingjun/share/doc/grub2-common-2.02/INSTALL"? ^C
[root@localhost ~]# cd dingjun
[root@localhost dingjun]# rm -rf *
[root@localhost dingjun]# ls dingjun
ls: 无法访问 dingjun: 没有那个文件或目录
[root@localhost dingjun]# ls
[root@localhost dingjun]# cd ../
[root@localhost ~]# ls
anaconda-ks.cfg  dingjun  dingjun1.txt  dingjun2.txt  dingjun.txt
[root@localhost ~]# cp -r /etc/yum/ /root/dingjun
[root@localhost ~]# ls dingjun
yum
[root@localhost ~]# ls -la /dev/dri
总用量 0
drwxr-xr-x. 2 root root      80 10月  6 14:30 .
drwxr-xr-x. 20 root root    3220 10月  6 14:30 ..
crw-rw----. 1 root video 226,  0 10月  6 14:30 card0
crw-rw----. 1 root video 226, 128 10月  6 14:30 renderD128
[root@localhost ~]#
```

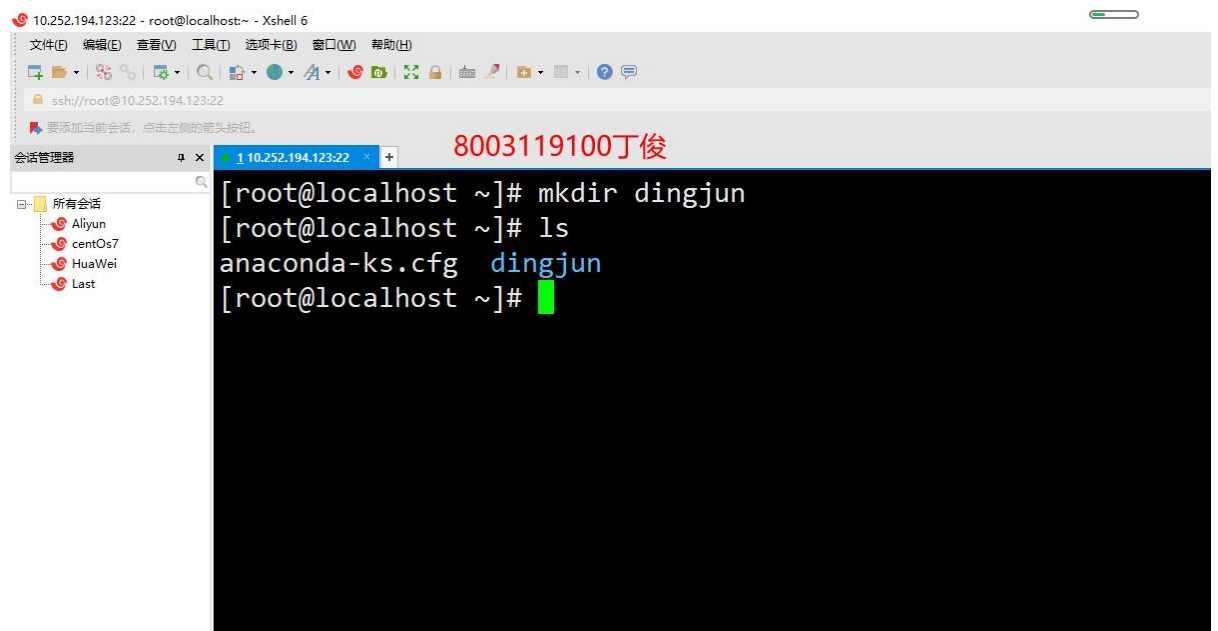
2. 任意选择一个目录（除了 root 目录以外），显示该目录中所有子目录的文件。

```
文件: "/tmp/temp.txt"  
大小: 19          块: 8          IO 块: 4096    普通文件  
设备: fd00h/64768d    Inode: 33642003    硬链接: 1  
权限: (0644/-rw-r--r--)  Uid: (  0/   root)  Gid: (  0/   root)  
环境: unconfined_u:object_r:admin_home_t:s0  
最近访问: 2021-10-06 15:16:22.886097738 +0800  
最近更改: 2021-10-06 15:16:22.886097738 +0800  
最近改动: 2021-10-06 15:17:18.710623861 +0800  
创建时间: -  
[root@localhost ~]# ls -R /etc/yum  
/etc/yum:  
fssnap.d  pluginconf.d  protected.d  vars  version-groups.conf  
  
/etc/yum/fssnap.d:  
  
/etc/yum/pluginconf.d:  
fastestmirror.conf  langpacks.conf  
  
/etc/yum/protected.d:  
systemd.conf  
  
/etc/yum/vars:  
contentdir  infra  
[root@localhost ~]#
```

3. 任意选择一个文件（除了 passwd 文件以外），以编号形式显示。

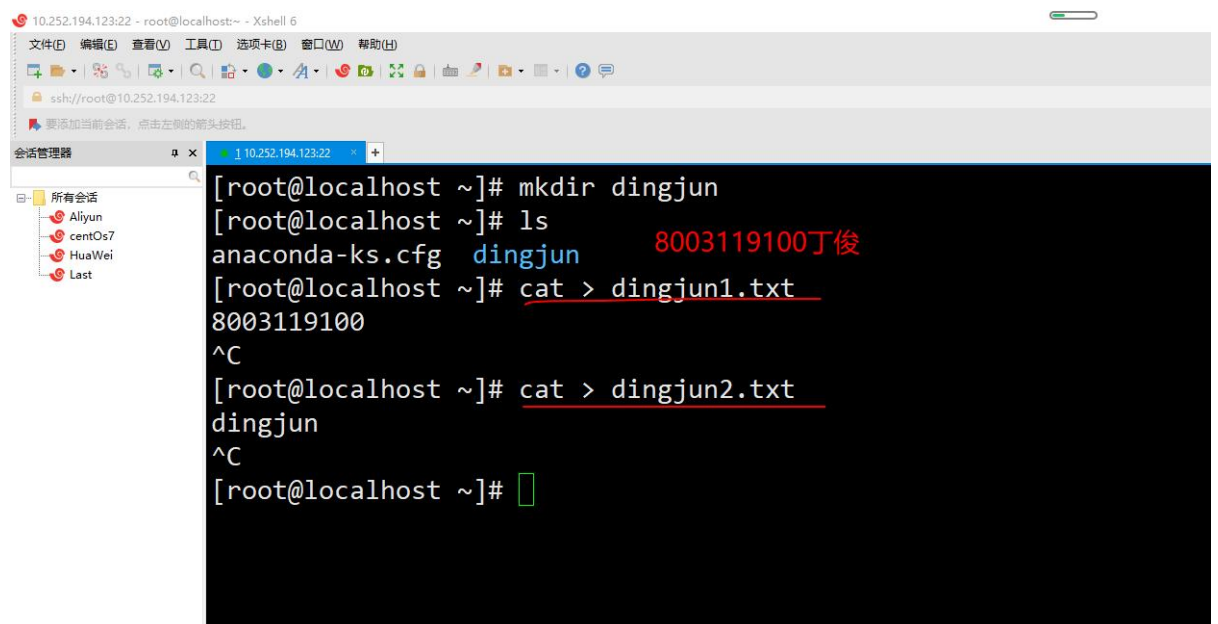
```
[root@localhost ~]# cd /etc  
[root@localhost etc]# cat -n yum.conf  
1  [main]  
2  cachedir=/var/cache/yum/$basearch/$releasever  
3  keepcache=0  
4  debuglevel=2  
5  logfile=/var/log/yum.log  
6  exactarch=1  
7  obsoletes=1  
8  gpgcheck=1  
9  plugins=1  
10 installonly_limit=5  
11 bugtracker_url=http://bugs.centos.org/set_project.php?project_id=23&ref=http://bugs.  
12 g_report_page.php?category=yum  
13 distroverpkg=centos-release  
14  
15 # This is the default, if you make this bigger yum won't see if the metadata  
16 # is newer on the remote and so you'll "gain" the bandwidth of not having to  
17 # download the new metadata and "pay" for it by yum not having correct  
18 # information.  
19 # It is esp. important, to have correct metadata, for distributions like  
20 # Fedora which don't keep old packages around. If you don't like this checking  
21 # interrupting your command line usage, it's much better to have something
```

4. 在/root 目录下，创建以自己姓名的全拼命名的目录，如：huaxin。

A screenshot of an Xshell terminal window. The title bar shows '10.252.194.123:22 - root@localhost:~ - Xshell 6'. The menu bar includes '文件(F)', '编辑(E)', '查看(V)', '工具(T)', '选项卡(B)', '窗口(W)', and '帮助(H)'. The toolbar contains various icons for file operations. The left sidebar shows a '会话管理器' (Session Manager) with a list of sessions: '所有会话', 'Aliyun', 'centOs7', 'HuaWei', and 'Last'. The main terminal area shows the following commands and output:

```
[root@localhost ~]# mkdir dingjun
[root@localhost ~]# ls
anaconda-ks.cfg  dingjun
[root@localhost ~]#
```

5. 在/root 目录下，利用 cat 命令新建以自己姓名全拼开头加数字的两个文件并分别输入学号和姓名，如：huaxin1.txt，huaxin2.txt。

A screenshot of an Xshell terminal window, similar to the previous one. The terminal shows the following commands and output:

```
[root@localhost ~]# mkdir dingjun
[root@localhost ~]# ls
anaconda-ks.cfg  dingjun
[root@localhost ~]# cat > dingjun1.txt
8003119100
^C
[root@localhost ~]# cat > dingjun2.txt
dingjun
^C
[root@localhost ~]#
```

6. 合并上一步创建的两个文件并命名为自己姓名的全拼，如：huaxin.txt，显示出内容。

The screenshot shows an Xshell terminal window with a menu bar (File, Edit, View, Tools, Tab, Window, Help) and a toolbar. The left sidebar shows a session manager with a list of sessions: Aliyun, CentOS7, HuaWei, and Last. The main terminal area displays the following commands and output:

```
[root@localhost ~]# mkdir dingjun
[root@localhost ~]# ls
anaconda-ks.cfg  dingjun
[root@localhost ~]# cat > dingjun1.txt
8003119100
^C
[root@localhost ~]# cat > dingjun2.txt
dingjun
^C
[root@localhost ~]# cat dingjun1.txt dingjun2.txt > dingjun.txt
[root@localhost ~]# cat dingjun.txt
8003119100
dingjun
[root@localhost ~]#
```

A red arrow points from the command `cat dingjun1.txt dingjun2.txt > dingjun.txt` to the output of the subsequent `cat dingjun.txt` command.

7. 利用管道线和 more 命令，显示任意一个命令的详细信息。

The screenshot shows an Xshell terminal window with the same interface as the previous one. The main terminal area displays the following commands and output:

```
[root@localhost ~]# man ls | more
LS(1)                                User Commands

NAME
    ls - list directory contents

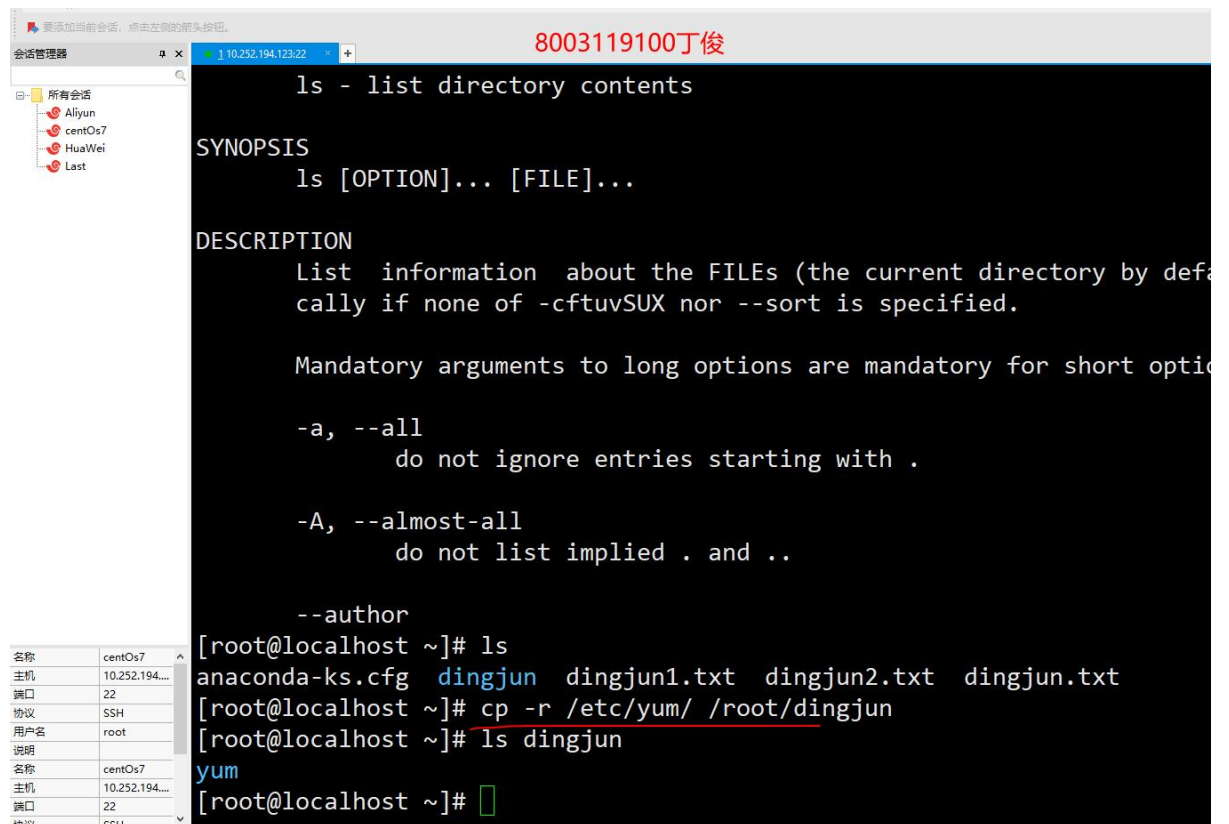
SYNOPSIS
    ls [OPTION]... [FILE]...

DESCRIPTION
    List information about the FILES (the current directory by default) if none of -cftuvSUX nor --sort is specified.

    Mandatory arguments to long options are mandatory for short options.

    -a, --all
```

8. 任意选择一个目录（必须包含其中的子目录和文件），将该目录下的所有文件复制到/root 下以自己姓名的全拼命名的目录中。



```
ls - list directory contents

SYNOPSIS
  ls [OPTION]... [FILE]...

DESCRIPTION
  List information about the FILES (the current directory by default if none of -cftuvSUX nor --sort is specified.

  Mandatory arguments to long options are mandatory for short options.

  -a, --all
      do not ignore entries starting with .

  -A, --almost-all
      do not list implied . and ..

  --author

[root@localhost ~]# ls
anaconda-ks.cfg  dingjun  dingjun1.txt  dingjun2.txt  dingjun.txt
[root@localhost ~]# cp -r /etc/yum/ /root/dingjun
[root@localhost ~]# ls dingjun
yum
[root@localhost ~]#
```

9. 将刚才合并的以自己姓名的全拼文件移动到/tmp/temp.txt(自己创建)中，但原生成日期和 inode 编号不得改变。



```
10.252.194.123:22 - root@localhost:~ - Xshell 6
文件(F) 编辑(E) 查看(V) 工具(T) 选项卡(B) 窗口(W) 帮助(H)
ssh://root@10.252.194.123:22
会话管理器
所有会话
Aliyun
centOs7
HuaWei
Last

[root@localhost ~]# ls dingjun8003119100丁俊
yum
[root@localhost ~]# stat dingjun.txt
 文件: "dingjun.txt"
 大小: 19          块: 8          IO 块: 4096   普通文件
设备: fd00h/64768d  Inode: 33642003  硬链接: 1
权限: (0644/-rw-r--r--)  Uid: (  0/   root)  Gid: (  0/   root)
环境: unconfined_u:object_r:admin_home_t:s0
最近访问: 2021-10-06 15:16:22.886097738 +0800
最近更改: 2021-10-06 15:16:22.886097738 +0800
最近改动: 2021-10-06 15:16:22.886097738 +0800
创建时间: -
[root@localhost ~]# mv dingjun.txt /tmp/temp.txt
[root@localhost ~]# stat /tmp/temp.txt
 文件: "/tmp/temp.txt"
 大小: 19          块: 8          IO 块: 4096   普通文件
设备: fd00h/64768d  Inode: 33642003  硬链接: 1
权限: (0644/-rw-r--r--)  Uid: (  0/   root)  Gid: (  0/   root)
环境: unconfined_u:object_r:admin_home_t:s0
最近访问: 2021-10-06 15:16:22.886097738 +0800
最近更改: 2021-10-06 15:16:22.886097738 +0800
最近改动: 2021-10-06 15:17:18.710623861 +0800
创建时间: -
[root@localhost ~]#
```

10. 将/root 目录下以自己姓名全拼开头的文件一次性移动到/mnt 中。

```
10.252.194.123:22 - root@localhost:~ - Xshell 6
文件(F) 编辑(E) 查看(V) 工具(T) 选项卡(B) 窗口(W) 帮助(H)
ssh://root@10.252.194.123:22
会话管理器
所有会话
Aliyun
centOs7
HuaWei
Last

DESCRIPTION
List information about the FILEs (the current directory by default
cally if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options

-a, --all
    do not ignore entries starting with .

-A, --almost-all
    do not list implied . and ..

--author
[root@localhost ~]# ls
anaconda-ks.cfg dingjun dingjun1.txt dingjun2.txt dingjun.txt
[root@localhost ~]# cp -r /etc/yum/ /root/dingjun
[root@localhost ~]# ls dingjun
yum
[root@localhost ~]# ls
anaconda-ks.cfg dingjun dingjun1.txt dingjun2.txt dingjun.txt
[root@localhost ~]# mv /root/dingjun* /mnt
[root@localhost ~]# ls /mnt
dingjun dingjun1.txt dingjun2.txt dingjun.txt
[root@localhost ~]#
```

11. 一次性删除/root 下以自己姓名的全拼命名的目录里所有的目录和文件，并且不

进行确认提示。

```
10.252.194.123:22 - root@localhost:~ - Xshell 6
文件(F) 编辑(E) 查看(V) 工具(T) 选项卡(B) 窗口(W) 帮助(H)
ssh://root@10.252.194.123:22
要添加当前会话，点击左侧的箭头按钮。
会话管理器
所有会话
Aliyun
centOs7
HuaWei
Last
8003119100丁俊
fssnap.d pluginconf.d protected.d vars version-groups.con
/etc/yum/fssnap.d:
/etc/yum/pluginconf.d:
fastestmirror.conf langpacks.conf
/etc/yum/protected.d:
systemd.conf
/etc/yum/vars:
contentdir infra
[root@localhost ~]# cd /mnt
[root@localhost mnt]# ls
dingjun dingjun1.txt dingjun2.txt dingjun.txt
[root@localhost mnt]# rm -rf dingjun*
[root@localhost mnt]# ls
[root@localhost mnt]# cd ~
[root@localhost ~]# ls
anaconda-ks.cfg dingjun dingjun1.txt dingjun2.txt
[root@localhost ~]# rm -rf dingjun/dingjun*
[root@localhost ~]# ls dingjun
yum
[root@localhost ~]#
```

12. 任意选择一个配置文件，使用 grep 过滤空格和注释信息。

```
[root@localhost ~]# mv /root/dingjun* /mnt
[root@localhost ~]# ls /mnt
dingjun dingjun1.txt dingjun2.txt dingjun.txt
[root@localhost ~]# cd /ect
-bash: cd: /ect: 没有那个文件或目录
[root@localhost ~]# cd /etc
[root@localhost etc]# cat my.cnf | grep -v '^#' | grep -v '^ #'
[mysqld]
datadir=/var/lib/mysql
socket=/var/lib/mysql/mysql.sock
symbolic-links=0

[mysqld_safe]
log-error=/var/log/mariadb/mariadb.log
pid-file=/var/run/mariadb/mariadb.pid

!includedir /etc/my.cnf.d

[root@localhost etc]# find /etc -name *.conf -a -atime +1
find: 路径必须在表达式之前: chrony.conf
用法: find [-H] [-L] [-P] [-Olevel] [-D help|tree|search|stat|rates|opt|exec] [path...] [expres
[root@localhost etc]# cd ~
[root@localhost ~]# find /etc -name *.conf -a -atime +1
/etc/pki/ca-trust/ca-legacy.conf
/etc/asound.conf
/etc/openldap/ldap.conf
/etc/dracut.conf
/etc/depmod.d/dist.conf
/etc/systemd/bootchart.conf
/etc/systemd/coredump.conf
/etc/systemd/journald.conf
/etc/systemd/system.conf
/etc/systemd/user.conf
/etc/dbus-1/session.conf
/etc/X11/xorg.conf.d/00-keyboard.conf
/etc/prelink.conf.d/nss-softokn-prelink.conf
/etc/prelink.conf.d/fipscheck.conf
/etc/prelink.conf.d/grub2.conf
/etc/ld.so.conf
/etc/ld.so.conf.d/mariadb-x86_64.conf
```

13. 在/etc 中查找当天没有访问过的目录中所有以.conf 为扩展名的文件。

```
[root@localhost ~]# find /etc -name *.conf -a -atime +1
/etc/pki/ca-trust/ca-legacy.conf
/etc/asound.conf
/etc/openldap/ldap.conf
/etc/dracut.conf
/etc/depmod.d/dist.conf
/etc/systemd/bootchart.conf
/etc/systemd/coredump.conf
/etc/systemd/journald.conf
/etc/systemd/system.conf
/etc/systemd/user.conf
/etc/dbus-1/session.conf
/etc/X11/xorg.conf.d/00-keyboard.conf
/etc/prelink.conf.d/nss-softokn-prelink.conf
/etc/prelink.conf.d/fipscheck.conf
/etc/prelink.conf.d/grub2.conf
/etc/ld.so.conf
/etc/ld.so.conf.d/mariadb-x86_64.conf
```

#### 四、主要仪器设备及耗材

计算机、VMware、CentOS 7、word

#### 五、实验步骤



六、实验数据及处理结果

七、思考讨论题或体会或对改进实验的建议

八、参考资料

[1] 文东戈,赵艳芹.Linux 操作系统实用教程（第 2 版）[M].北京：清华大学出版社.2019,9.