

南京邮电大学

实验报告

(2024 / 2025 学年 第一 学期)

课程名称	Linux 编程			
实验名称	实验一			
实验时间	2024	年	10 月	18 日
指导单位	计算机学院、软件学院、网络空间安全学院			
指导教师	王磊			

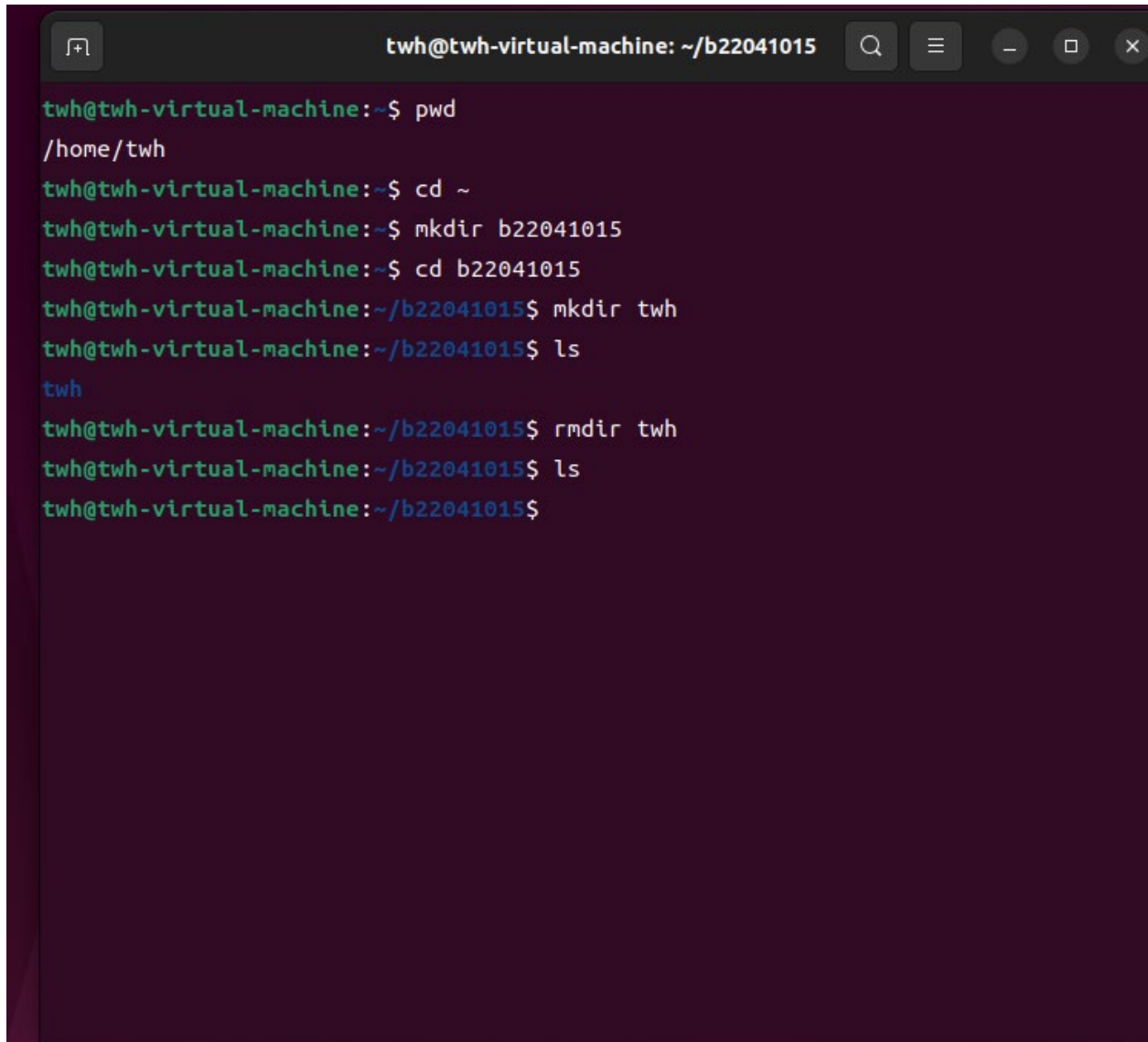
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实 验 报 告

实验名称	实验一			指导教师	王磊
实验类型	上机	实验学时	4	实验时间	2024.10.18
<p>一、 实验目的和要求</p> <p>通过实验熟悉 Linux 操作系统环境，掌握基本的 Linux 命令使用</p>					
<p>二、 实验环境(实验设备)</p> <p>Win11+Vmware Workstation Pro+Ubuntu</p>					
<p>三、 实验原理及内容</p> <p>掌握 Linux 文件权限管理。</p> <p>掌握基本的文件和目录操作。</p> <p>掌握 Linux 用户管理。</p> <p>掌握文件压缩和归档。</p>					

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(1) Directory Operation

A terminal window titled 'twh@twh-virtual-machine: ~/b22041015' with standard window controls. The terminal shows a sequence of commands and their outputs: 'pwd' returns '/home/twh', 'cd ~' returns to the home directory, 'mkdir b22041015' creates a new directory, 'cd b22041015' enters it, 'mkdir twh' creates a subdirectory, 'ls' lists the subdirectory, and 'rmdir twh' removes it. The final 'ls' command shows an empty directory.

```
twh@twh-virtual-machine: ~/b22041015
twh@twh-virtual-machine:~$ pwd
/home/twh
twh@twh-virtual-machine:~$ cd ~
twh@twh-virtual-machine:~$ mkdir b22041015
twh@twh-virtual-machine:~$ cd b22041015
twh@twh-virtual-machine:~/b22041015$ mkdir twh
twh@twh-virtual-machine:~/b22041015$ ls
twh
twh@twh-virtual-machine:~/b22041015$ rmdir twh
twh@twh-virtual-machine:~/b22041015$ ls
twh@twh-virtual-machine:~/b22041015$
```

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(2) File operation

```
twh@twh-virtual-machine:~/b22041015$ cd ~
twh@twh-virtual-machine:~$ touch twh.txt
twh@twh-virtual-machine:~$ ls
1.txt  4.py      Desktop  get-pip.py  Public  twh.txt
2.py   b22041015 Documents Music       snap    Videos
3.py   b22041015twh Downloads Pictures    Templates
twh@twh-virtual-machine:~$ echo "hello world" > twh.txt
twh@twh-virtual-machine:~$ cat twh.txt
hello world
twh@twh-virtual-machine:~$ cp twh.txt twh2.txt

twh@twh-virtual-machine:~$ mv twh.txt b22041015.txt
twh@twh-virtual-machine:~$ ls
1.txt  4.py      b22041015.txt  Downloads  Pictures  Templates
2.py   b22041015 Desktop      get-pip.py  Public    twh2.txt
3.py   b22041015twh Documents    Music       snap      Videos
twh@twh-virtual-machine:~$
```

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(3) User Management

```
root@twh-virtual-machine: /home/twh

twh@twh-virtual-machine:~$ whoami
twh
twh@twh-virtual-machine:~$ sudo su root
[sudo] password for twh:
root@twh-virtual-machine:/home/twh# groupadd student
root@twh-virtual-machine:/home/twh# whoami
root
root@twh-virtual-machine:/home/twh# adduser b22041015
Adding user `b22041015' ...
Adding new group `b22041015' (1002) ...
Adding new user `b22041015' (1001) with group `b22041015' ...
Creating home directory `/home/b22041015' ...
Copying files from `/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for b22041015
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
root@twh-virtual-machine:/home/twh# usermod -g student b22041015

root@twh-virtual-machine:/home/twh# su b22041015
b22041015@twh-virtual-machine:/home/twh$ cd ~
b22041015@twh-virtual-machine:~$ touch twh.txt
b22041015@twh-virtual-machine:~$ ls -l
total 0
-rw-r--r-- 1 b22041015 student 0 10月 18 08:31 twh.txt
b22041015@twh-virtual-machine:~$
```

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(4) Permission management

```
b22041015@twh-virtual-machine: ~  
b22041015@twh-virtual-machine:~$ touch demo  
b22041015@twh-virtual-machine:~$ chmod 777 demo  
b22041015@twh-virtual-machine:~$ ls -l demo  
-rwxrwxrwx 1 b22041015 student 0 10月 18 08:32 demo  
b22041015@twh-virtual-machine:~$ chmod a-x demo  
b22041015@twh-virtual-machine:~$ ls -l demo  
-rw-rw-rw- 1 b22041015 student 0 10月 18 08:32 demo  
b22041015@twh-virtual-machine:~$ chmod go-w demo  
b22041015@twh-virtual-machine:~$ ls -l demo  
-rw-r--r-- 1 b22041015 student 0 10月 18 08:32 demo  
b22041015@twh-virtual-machine:~$ chmod g+w demo  
b22041015@twh-virtual-machine:~$ ls -l demo  
-rw-rw-r-- 1 b22041015 student 0 10月 18 08:32 demo  
b22041015@twh-virtual-machine:~$ chmod a= demo  
b22041015@twh-virtual-machine:~$ ls -l demo  
----- 1 b22041015 student 0 10月 18 08:32 demo  
b22041015@twh-virtual-machine:~$ chmod +t demo  
b22041015@twh-virtual-machine:~$ ls -l demo  
-----T 1 b22041015 student 0 10月 18 08:32 demo  
b22041015@twh-virtual-machine:~$ chmod u+s demo  
b22041015@twh-virtual-machine:~$ ls -l demo  
---S-----T 1 b22041015 student 0 10月 18 08:32 demo  
b22041015@twh-virtual-machine:~$ chmod u+rx demo  
b22041015@twh-virtual-machine:~$ ls -l demo  
-r-s-----T 1 b22041015 student 0 10月 18 08:32 demo  
b22041015@twh-virtual-machine:~$ chmod g+rws demo  
b22041015@twh-virtual-machine:~$ ls -l demo  
-r-srws--T 1 b22041015 student 0 10月 18 08:32 demo
```

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###(5) Other management

```
b22041015@twh-virtual-machine:~/others$ cd ../
b22041015@twh-virtual-machine:~$ tar -czvf backup.tar.gz others
others/
others/backup.tar.gz
b22041015@twh-virtual-machine:~$ cd others/
b22041015@twh-virtual-machine:~/others$ ls -l
total 4
-rw-r--r-- 1 b22041015 student 45 10月 18 08:39 backup.tar.gz
b22041015@twh-virtual-machine:~/others$ tar -xzf backup.tar.gz
b22041015@twh-virtual-machine:~/others$ ls -l
total 4
-rw-r--r-- 1 b22041015 student 45 10月 18 08:39 backup.tar.gz
b22041015@twh-virtual-machine:~/others$ touch 111.txt
b22041015@twh-virtual-machine:~/others$ pwd
/home/b22041015/others
b22041015@twh-virtual-machine:~/others$ vim 111.txt
b22041015@twh-virtual-machine:~/others$ grep '^n' 111.txt
no, I study in njupt.
no, I study in njupt.
b22041015@twh-virtual-machine:~/others$ grep '\.005' 111.txt
b22041015@twh-virtual-machine:~/others$ grep '\.00$' 111.txt
this line ends with .00
He is 15. It is 16.00
this line ends with .00
He is 15. It is 16.00
b22041015@twh-virtual-machine:~/others$ grep '5\..' 111.txt
He is 15. It is 16.00
He is 15. It is 16.00
b22041015@twh-virtual-machine:~/others$ grep '^[wy]' 111.txt
wy is the short of my name.
wy is the short of my name.
b22041015@twh-virtual-machine:~/others$
```

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四、实验小结（包括总结上机调试过程中所遇到的问题和解决方法、感想与建议等）

问题：在修改文件权限时，对权限符号不够熟悉，导致无法预期设置权限。

解决方法：通过实验和 `ls -l` 命令查看权限变化，逐步理解并掌握了权限设置的方法和意义。

通过本次实验，我对 Linux 操作系统有了更加深入的了解和掌握。

五、指导教师评语

成 绩		批阅人		日 期	
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