# Network Engineering 2019 Exercises - Unit 1

## 1 Basic POSIX file permissions

Write a shell-script called `unit1-solution1.sh` that creates **directories** inside a directory called `unit1exercise1` with the following properties, and then creates a **compressed tar file** called `unit1-solution1.tgz`

1. `aufgeschmeckte`, mode `-w---x---`
2. `aufgeschmecktete`, mode `r-x-w--w-`
3. `ausgekaestest`, mode `r----x---`
4. `ensetzse`, mode `---rw---x`
5. `auftrautete`, mode `rwx--x-w-`
6. `gerauchse`, mode `r--rw---x`
7. `gerenner`, mode `--xrw-r-x`
8. `anlaufen`, mode `r---wxr--`
9. `aufgeschmecktete/gehalts`, mode `-wx-w--w-`
10. `gerenner/behunder`, mode `--x-wxr-x`
11. `gerauchse/angerennte`, mode `rw--w-r-x`
12. `gerenner/beschmecken`, mode `r--r--rw-`
13. `gerauchse/gehundse`, mode `----w---x`
14. `aufgeschmecktete/gehalts/einkatzeheit`, mode `r---w---x`
15. `gerauchse/angerennte/angewarfte`, mode `r-xr----x`
16. `gerenner/behunder/angekraut`, mode `-w--w-rwx`
17. `gerauchse/angerennte/aufwitzen`, mode `rw-r-x-wx`
18. `gerenner/beschmecken/aufgewarfen`, mode `rw-r-xr-x`
19. `aufgeschmecktete/gehalts/zerlaufen`, mode `r--r-x-wx`
20. `gerenner/behunder/ansetzen`, mode `r-xr---w-`

Your work will be **automatically marked** by comparing the contents of the compressed tar file against a template. Therefore it is important that you have every detail correct.

This exercise can be be completed using the `cd`, `mkdir`, `chown`, `chmod` and `sudo` shell commands, although you can use other shell commands if you wish.

An unsophisticated script to complete this would be 2419 bytes long, while a compact script would be no larger than 968.

Grading for this exercise for you is according to the following guide:

| Requirement | Percentage |
|---|---|
| Correctness of solution | 60% |
| Compactness of solution | 40% |

The compactness scores are according to the following table:

| Length of script | Percentage |
|---|---|
| 2420 bytes or more | 0% |
| 1694 – 2419 bytes | 5% |
| 969 – 1693 bytes | 15% |
| 823 – 968 bytes | 25% |
| less than 823 bytes | 40% |

To test your solution, use a command like:

```
sudo tar zcf unit1-solution1.tgz unit1exercise1
./unit1-exercise-1-grade.sh unit1-solution1.sh
```

To submit your solution (which you can do as many times as you like), use a command like:

```
sudo tar zcf unit1-solution1.tgz unit1exercise1
git add unit1-solution1.sh unit1-solution1.tgz
git commit unit1-solution1.sh unit1-solution1.tgz
git push origin master
```

# 2 User and groups

Write a shell-script called `unit1-solution2.sh` that creates **directories** inside a directory called `unit1exercise2` with the following properties, and then creates a **compressed tar file** called `unit1-solution2.tgz`

1. `angefahren`, mode `rwxr---wx`, owner `proxy`, group `dip`
2. `auflaufst`, mode `r-x---rw-`, owner `uucp`, group `mail`
3. `vertrittheit`, mode `rwx-wxrwx`, owner `news`, group `news`
4. `angerabarbst`, mode `-wxrw----`, owner `news`, group `uucp`
5. `besinntest`, mode `rw-rwx-wx`, owner `proxy`, group `voice`
6. `aufgesinner`, mode `-----x-w-`, owner `proxy`, group `floppy`

7. `angetrause`, mode `-w----rwx`, owner `games`, group `floppy`
8. `anrauchen`, mode `------rwx`, owner `games`, group `cdrom`
9. `angetrause/betrittte`, mode `rw--w--w-`, owner `student`, group `uucp`
10. `aufgesinner/getrittse`, mode `rw-------`, owner `lp`, group `tape`
11. `angefahren/aufgefahrtest`, mode `rw-rwxr--`, owner `games`, group `voice`
12. `aufgesinner/auflaufkeit`, mode `r--r--rwx`, owner `news`, group `news`
13. `anrauchen/einlaufung`, mode `rw---xr-x`, owner `news`, group `cdrom`
14. `anrauchen/einlaufung/besetzse`, mode `rw-rw-rwx`, owner `proxy`, group `news`
15. `aufgesinner/auflaufkeit/angetrauer`, mode `--xrw--w-`, owner `student`, group `uucp`
16. `anrauchen/einlaufung/angesprachst`, mode `-wxrw-rwx`, owner `student`, group `news`
17. `anrauchen/einlaufung/enrauchtete`, mode `r-----r-x`, owner `uucp`, group `fax`
18. `anrauchen/einlaufung/verrennse`, mode `-w--w-rw-`, owner `student`, group `student`
19. `aufgesinner/getrittse/aufgewarfung`, mode `---r-----`, owner `proxy`, group `audio`
20. `anrauchen/einlaufung/aufgeklettte`, mode `-w-rw-r--`, owner `student`, group `dip`

Your work will be **automatically marked** by comparing the contents of the compressed tar file against a template. Therefore it is important that you have every detail correct.

This exercise can be be completed using the `cd`, `mkdir`, `chown`, `chmod` and `sudo` shell commands, although you can use other shell commands if you wish.

An unsophisticated script to complete this would be 2366 bytes long, while a compact script would be no larger than 1221.

Grading for this exercise for you is according to the following guide:

| Requirement | Percentage |
|---|---|
| Correctness of solution | 60% |
| Compactness of solution | 40% |

The compactness scores are according to the following table:

| Length of script | Percentage |
|---|---|
| 2367 bytes or more | 0% |
| 1794 – 2366 bytes | 5% |
| 1222 – 1793 bytes | 15% |
| 1038 – 1221 bytes | 25% |
| less than 1038 bytes | 40% |

To test your solution, use a command like:

```
sudo tar zcf unit1-solution2.tgz unit1exercise2
./unit1-exercise-2-grade.sh unit1-solution2.sh
```

To submit your solution (which you can do as many times as you like), use a command like:

```
sudo tar zcf unit1-solution2.tgz unit1exercise2
git add unit1-solution2.sh unit1-solution2.tgz
git commit unit1-solution2.sh unit1-solution2.tgz
git push origin master
```

# 3 Set-user and Set-group ID

Write a shell-script called `unit1-solution3.sh` that creates **directories** inside a directory called `unit1exercise3` with the following properties, and then creates a **compressed tar file** called `unit1-solution3.tgz`

1. `enspracht`, mode `-wxrw---x`, owner `mail`, group `student`, `setuid`
2. `befahrse`, mode `r----xrwx`, owner `nobody`, group `dip`
3. `aussteht`, mode `rw------x`, owner `proxy`, group `cdrom`, `setuid`
4. `einwarfs`, mode `r-xrw---x`, owner `mail`, group `dip`, `setuid`
5. `ausrennse`, mode `-wxr-xr--`, owner `lp`, group `audio`, `setuid`
6. `zerkatzet`, mode `r-xr-xr--`, owner `news`, group `news`
7. `ensinnse`, mode `r--rwx--x`, owner `lp`, group `voice`, `setuid`
8. `ausgesinner`, mode `rw----r-x`, owner `mail`, group `tape`, `setuid`
9. `ausgesinner/angesitzte`, mode `--xr---w-`, owner `student`, group `proxy`, `setuid`
10. `enspracht/aufgeschmeckt`, mode `rwxr--r-x`, owner `news`, group `cdrom`
11. `enspracht/ausschmeckse`, mode `rwx-w--wx`, owner `nobody`, group `cdrom`, `setuid`

12. `befahrse/aufgewarfst`, mode `r--rw-r-x`, owner `lp`, group `student`
13. `ausgesinner/angewarfte`, mode `rw-r-xr-x`, owner `student`, group `news`, `setuid`
14. `ausgesinner/angewarfte/ausgekrautete`, mode `-------w-`, owner `student`, group `tape`, `setuid`
15. `ausgesinner/angesitzte/begehse`, mode `----w-rwx`, owner `news`, group `news`, `setuid`
16. `enspracht/ausschmeckse/gegehte`, mode `r-x--x---`, owner `lp`, group `tape`
17. `ausgesinner/angewarfte/aufsetzs`, mode `-w----rw-`, owner `news`, group `uucp`
18. `befahrse/aufgewarfst/anrenner`, mode `-wxrwx--x`, owner `student`, group `uucp`
19. `ausgesinner/angesitzte/einhunder`, mode `rw--w---x`, owner `nobody`, group `mail`, `setuid`
20. `ausgesinner/angesitzte/angehaltt`, mode `rwxr--rwx`, owner `student`, group `cdrom`

Your work will be **automatically marked** by comparing the contents of the compressed tar file against a template. Therefore it is important that you have every detail correct.

This exercise can be be completed using the `cd`, `mkdir`, `chown`, `chmod` and `sudo` shell commands, although you can use other shell commands if you wish.

An unsophisticated script to complete this would be 2326 bytes long, while a compact script would be no larger than 1223.

Grading for this exercise for you is according to the following guide:

| Requirement | Percentage |
|---|---|
| Correctness of solution | 60% |
| Compactness of solution | 40% |

The compactness scores are according to the following table:

| Length of script | Percentage |
|---|---|
| 2327 bytes or more | 0% |
| 1775 – 2326 bytes | 5% |
| 1224 – 1774 bytes | 15% |
| 1040 – 1223 bytes | 25% |
| less than 1040 bytes | 40% |

To test your solution, use a command like:

```
sudo tar zcf unit1-solution3.tgz unit1exercise3
./unit1-exercise-3-grade.sh unit1-solution3.sh
```

To submit your solution (which you can do as many times as you like), use a command like:

```
sudo tar zcf unit1-solution3.tgz unit1exercise3
git add unit1-solution3.sh unit1-solution3.tgz
git commit unit1-solution3.sh unit1-solution3.tgz
git push origin master
```

# 4 Set-group ID Directories

Write a shell-script called `unit1-solution4.sh` that creates **directories** inside a directory called `unit1exercise4` with the following properties, and then creates a **compressed tar file** called `unit1-solution4.tgz`

1. `angehundte`, mode `rw---xrwx`, group `uucp`, `setgid`
2. `aufsitzs`, mode `rwxr-xrw-`, group `audio`, `setgid`
3. `einsteht`, mode `-wx-wx-wx`, group `news`, `setgid`
4. `aufgekaestest`, mode `rw-rw-rwx`, group `floppy`, `setgid`
5. `verhaltst`, mode `-wx------`, group `dip`
6. `angerabarbtest`, mode `rw-r-x-wx`, group `voice`, `setgid`
7. `angepflumtest`, mode `rwxr---wx`, group `voice`, `setgid`
8. `einspracher`, mode `rw-----wx`, group `tape`, `setgid`
9. `angerabarbtest/ansinns`, mode `-w--w----`, group `fax`
10. `angepflumtest/vertrauer`, mode `-wx--xrwx`, group `floppy`, `setgid`
11. `angerabarbtest/zerwitzen`, mode `-w-r-----`, group `cdrom`
12. `aufgekaestest/angetraut`, mode `r-----rw-`, group `cdrom`, `setgid`
13. `einsteht/verhalter`, mode `-wxr--r-x`, group `floppy`, `setgid`
14. `einsteht/verhalter/verhaltkeit`, mode `-w-r-xrw-`, group `audio`, `setgid`
15. `aufgekaestest/angetraut/gewitzen`, mode `rw-r--r-x`, group `fax`, `setgid`
16. `angerabarbtest/ansinns/aufschmecktete`, mode `rwx-wxrwx`, group `voice`
17. `angepflumtest/vertrauer/auskatzete`, mode `--xrwxrw-`, group `audio`, `setgid`

18. `angepflumtest/vertrauer/einwarfen`, mode `r---wxr--`, group `audio`, `setgid`

19. `aufgekaestest/angetraut/enrauchen`, mode `----wx---`, group `cdrom`, `setgid`

20. `aufgekaestest/angetraut/aufpflumte`, mode `---rw-rw-`, group `dip`

Your work will be **automatically marked** by comparing the contents of the compressed tar file against a template. Therefore it is important that you have every detail correct.

This exercise can be be completed using the `cd`, `mkdir`, `chown`, `chmod` and `sudo` shell commands, although you can use other shell commands if you wish.

An unsophisticated script to complete this would be 2465 bytes long, while a compact script would be no larger than 1110.

Grading for this exercise for you is according to the following guide:

| Requirement | Percentage |
|---|---|
| Correctness of solution | 60% |
| Compactness of solution | 40% |

The compactness scores are according to the following table:

| Length of script | Percentage |
|---|---|
| 2466 bytes or more | 0% |
| 1788 – 2465 bytes | 5% |
| 1111 – 1787 bytes | 15% |
| 944 – 1110 bytes | 25% |
| less than 944 bytes | 40% |

To test your solution, use a command like:

```
sudo tar zcf unit1-solution4.tgz unit1exercise4
./unit1-exercise-4-grade.sh unit1-solution4.sh
```

To submit your solution (which you can do as many times as you like), use a command like:

```
sudo tar zcf unit1-solution4.tgz unit1exercise4
git add unit1-solution4.sh unit1-solution4.tgz
git commit unit1-solution4.sh unit1-solution4.tgz
git push origin master
```

# 5 Interpreting File Permissions

For each of the following exercises, determine whether the given file or directory can be accessed in the manner described. Remember that file or directory access can be mediated by owner, group or other permissions, and that the first matching item applies.

As you have a 50% chance of getting each item correct, you must score more than 50% to obtain a positive result for this section. There are 40 questions, and your score will be $(n - 20)/20$, where $n$ is the number of correct responses.

You should record your answers in a single text file called unit1-answers.txt, consisting of 40 consecutive `Y`, `1`, `2` or `3` characters on a single line.

To submit your answers (which you can do as many times as you like), commit your answer file to your git repository, and push it to github, e.g.:
`git add unit1-answers.txt ; git commit unit1-answers.txt ; git push origin master`

At the end of this section there is a hash which reflects the hash of the correct result of all 40 questions. You can use this to check if you have all answers correct. However, it will not tell you how many you have correct (that would let you work out which ones were wrong through a process of elimination.

## 5.1

Can the user **proxy**, who is a member of the **news** group, **execute** the file `/enlaufse/aussprachung/zerwitztest`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w-r--rwx    games    cdrom     0 enlaufse
   └─ (2)    dr-xr-xr-x  student  student     0 aussprachung
      └─ (3) --wx-w-r--    proxy     mail     0 zerwitztest
```

## 5.2

Can the user **news**, who is a member of the **audio** group, **write into** the file `/einfahrte/angelaufst/verkrauer`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--x---r-x  student      dip     0 einfahrte
   └─ (2)    dr-x---r--    games    audio     0 angelaufst
      └─ (3) --w-rw-rw-     news      dip     0 verkrauer
```

### 5.3

Can the user **games**, who is a member of the **student** group, **execute** the file `/ausgegeht/aufgerabarbt/gerennen`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drw-rwxr-x     mail      dip     0 ausgegeht
   └─ (2)    d-w-rw-r-x     news    proxy     0 aufgerabarbt
      └─ (3) --wx-wxr-x    games    voice     0 gerennen
```

### 5.4

Can the user **news**, who is a member of the **floppy** group, **execute** the file `/angekaeskeit/ausgepflumen/ausfahrung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wx--xr-x    proxy    cdrom     0 angekaeskeit
   └─ (2)    drwxr-x-w-       lp   floppy     0 ausgepflumen
      └─ (3) ----r-x-wx     news    cdrom     0 ausfahrung
```

### 5.5

Can the user **nobody**, who is a member of the **cdrom** group, **write into** the file `/befahrkeit/begehkeit/angegehs`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-xrw-r-x   nobody   floppy     0 befahrkeit
   └─ (2)    d--xr-xr-x  student    cdrom     0 begehkeit
      └─ (3) -rwx--xrw-       lp    proxy     0 angegehs
```

### 5.6

Can the user **games**, who is a member of the **audio** group, **read from** the file `/einrennkeit/gestehtest/verkatzese`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wx-wxrwx     uucp     uucp     0 einrennkeit
   └─ (2)    d-wx---r-x     news    audio     0 gestehtest
      └─ (3) -r--rw---x     mail    audio     0 verkatzese
```

### 5.7

Can the user **uucp**, who is a member of the **audio** group, **read from** the file `/auskraukeit/angetritttete/enkatzekeit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--x-wx---   nobody  student     0 auskraukeit
   └─ (2)    d---r-xrw-   nobody    audio     0 angetritttete
      └─ (3) -r-x--xr-x     uucp     uucp     0 enkatzekeit
```

### 5.8

Can the user **proxy**, who is a member of the **fax** group, **read from** the file `/enkaestest/bekaeskeit/enfahrtete`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx-w-rwx    proxy     uucp     0 enkaestest
   └─ (2)    dr-xrwxrw-    proxy  student     0 bekaeskeit
      └─ (3) -r-xr-x---    proxy     uucp     0 enfahrtete
```

### 5.9

Can the user **lp**, who is a member of the **cdrom** group, **read from** the file `/aufsitzte/aufgerauchtete/auffahrte`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d----w-rwx     uucp     news     0 aufsitzte
   └─ (2)    drwx-w-rw-   nobody    cdrom     0 aufgerauchtete
      └─ (3) -r-xr--r-x     news    cdrom     0 auffahrte
```

### 5.10

Can the user **news**, who is a member of the **audio** group, **execute** the file `/ausrennst/ausrenner/antritttete`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wxrwxrw-    games    audio     0 ausrennst
   └─ (2)    drwxr--r-x    games    cdrom     0 ausrenner
      └─ (3) -------rw-     news    cdrom     0 antritttete
```

### 5.11

Can the user **proxy**, who is a member of the **dip** group, **read from** the file `/ausgewarfse/angewarfer/entrauen`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxr-x-w-     uucp  student     0 ausgewarfse
   └─ (2)    d-wx---rwx   nobody    cdrom     0 angewarfer
      └─ (3) -rw--wxr-x       lp    cdrom     0 entrauen
```

### 5.12

Can the user **lp**, who is a member of the **cdrom** group, **execute** the file `/auftrauheit/einfahrtest/aufgelaufheit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--xrwx-w-     news     news     0 auftrauheit
   └─ (2)    d-w-r-x-wx  student    cdrom     0 einfahrtest
      └─ (3) -----wx-wx     mail     mail     0 aufgelaufheit
```

### 5.13

Can the user **news**, who is a member of the **cdrom** group, **write into** the file `/zerwarfse/angehalttest/versetzte`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx-w-rwx     news    proxy     0 zerwarfse
   └─ (2)    dr-xr-xrw-  student    cdrom     0 angehalttest
      └─ (3) -r-xr-xrw-   nobody  student     0 versetzte
```

### 5.14

Can the user **uucp**, who is a member of the **fax** group, **execute** the file `/angepflumt/engeht/angesitzung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr--rwx-w-   nobody    cdrom     0 angepflumt
   └─ (2)    drwx--x---     uucp      dip     0 engeht
      └─ (3) --w-r-xrw-     mail      fax     0 angesitzung
```

### 5.15

Can the user **uucp**, who is a member of the **proxy** group, **execute** the file `/einhundtete/angesitzkeit/aufgepflumen`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--x-wxrwx   nobody   floppy     0 einhundtete
   └─ (2)    drw--wxrwx     mail     uucp     0 angesitzkeit
      └─ (3) --wxrw--wx     uucp  student     0 aufgepflumen
```

### 5.16

Can the user **student**, who is a member of the **cdrom** group, **write into** the file `/aussprachs/verlauftete/gerabarbst`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-xrwxr-x    proxy    cdrom     0 aussprachs
   └─ (2)    dr--r-x---       lp    cdrom     0 verlauftete
      └─ (3) -rwxrwx-w-     news    cdrom     0 gerabarbst
```

## 5.17

Can the user **mail**, who is a member of the **proxy** group, **read from** the file `/angeht/begeht/ensitzkeit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr--r-xrwx   nobody     uucp     0 angeht
   └─ (2)    dr-x-w--w-  student    proxy     0 begeht
      └─ (3) -rw-r-x-w-  student    proxy     0 ensitzkeit
```

## 5.18

Can the user **nobody**, who is a member of the **student** group, **execute** the file `/einrauchen/befahrtest/zerhunden`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-x-w--w-       lp   floppy     0 einrauchen
   └─ (2)    drwxrwxrwx    proxy  student     0 befahrtest
      └─ (3) -rwx--xrw-   nobody    proxy     0 zerhunden
```

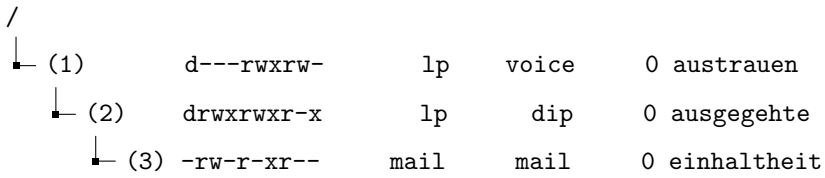
## 5.19

Can the user **mail**, who is a member of the **fax** group, **execute** the file `/zerfahrse/anrabarbung/aufgerauchs`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxr-x-wx     mail     news     0 zerfahrse
   └─ (2)    d------r-x       lp      fax     0 anrabarbung
      └─ (3) -rwxr---wx       lp    voice     0 aufgerauchs
```

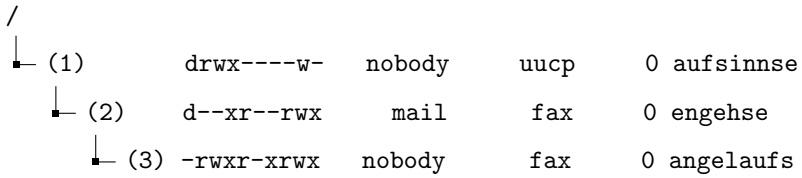
## 5.20

Can the user **proxy**, who is a member of the **voice** group, **read from** the file `/austrauen/ausgegehte/einhaltheit`? If not, which of the three directories blocks access (Y|1|2|3)



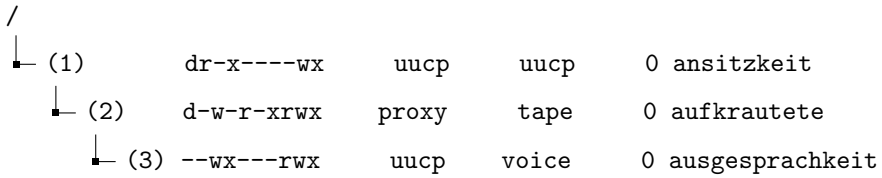

### 5.21

Can the user **nobody**, who is a member of the **uucp** group, **write into** the file `/aufsinnse/engehse/angelaufs`? If not, which of the three directories blocks access (Y|1|2|3)



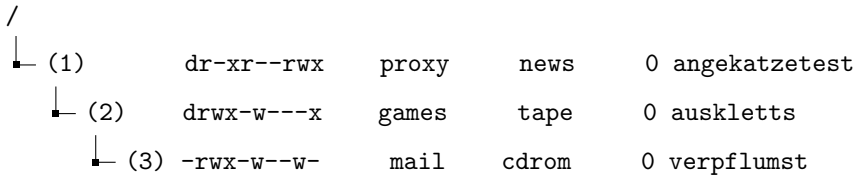

### 5.22

Can the user **uucp**, who is a member of the **tape** group, **write into** the file `/ansitzkeit/aufkrautete/ausgesprachkeit`? If not, which of the three directories blocks access (Y|1|2|3)



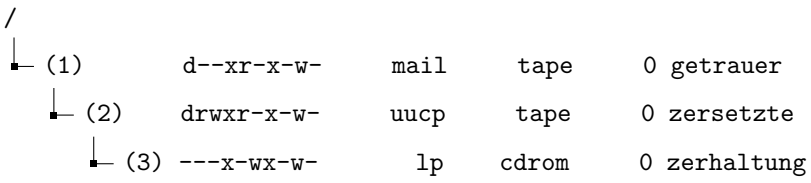

### 5.23

Can the user **games**, who is a member of the **cdrom** group, **write into** the file `/angekatzetest/auskletts/verpflumst`? If not, which of the three directories blocks access (Y|1|2|3)



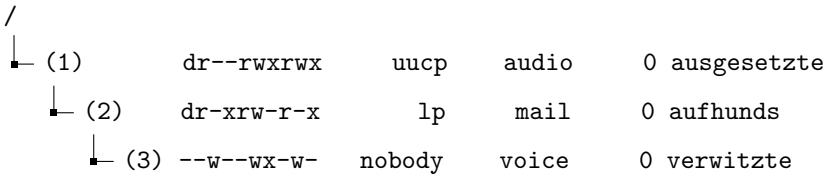
### 5.24

Can the user **lp**, who is a member of the **tape** group, **execute** the file `/getrauer/zersetzte/zerhaltung`? If not, which of the three directories blocks access (Y|1|2|3)



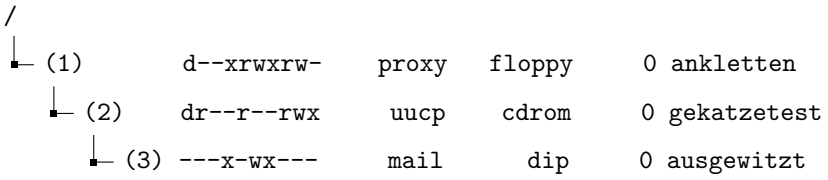

### 5.25

Can the user **lp**, who is a member of the **voice** group, **write into** the file `/ausgesetzte/aufhunds/verwitzte`? If not, which of the three directories blocks access (Y|1|2|3)



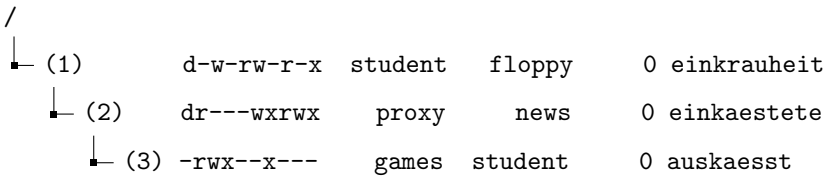

### 5.26

Can the user **mail**, who is a member of the **floppy** group, **execute** the file `/ankletten/gekatzetest/ausgewitzt`? If not, which of the three directories blocks access (Y|1|2|3)




### 5.27

Can the user **games**, who is a member of the **tape** group, **execute** the file `/einkrauheit/einkaestete/auskaesst`? If not, which of the three directories blocks access (Y|1|2|3)



## 5.28

Can the user **uucp**, who is a member of the **mail** group, **write into** the file `/anrabarbs/gekrautete/getrittheit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxr-x--x     uucp      dip     0 anrabarbs
   └─ (2)    drwx---rwx  student     mail     0 gekrautete
      └─ (3) ---xrw-rw-       lp     tape     0 getrittheit
```

## 5.29

Can the user **news**, who is a member of the **uucp** group, **execute** the file `/aufgerauchse/aufgelaufer/ansprachheit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--xr---w-    proxy    voice     0 aufgerauchse
   └─ (2)    drwxrw-rwx     news     uucp     0 aufgelaufer
      └─ (3) --wxrw-r-x     news    voice     0 ansprachheit
```

## 5.30

Can the user **student**, who is a member of the **dip** group, **read from** the file `/gestehte/aufhundung/aufgegehen`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-x--x-w-  student   floppy     0 gestehte
   └─ (2)    dr-xrwx---       lp      dip     0 aufhundung
      └─ (3) -----w----  student     tape     0 aufgegehen
```

## 5.31

Can the user **uucp**, who is a member of the **dip** group, **read from** the file `/einwarfheit/bewitzen/ausgespracht`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--xrwx-w-    proxy    proxy     0 einwarfheit
   └─ (2)    drw-r-x---    games      dip     0 bewitzen
      └─ (3) -r--rwxr--   nobody      dip     0 ausgespracht
```

### 5.32

Can the user **lp**, who is a member of the **news** group, **write into** the file `/einkaest/vergehs/ausgeklettheit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr---wxr-x     uucp    voice     0 einkaest
   └─ (2)    dr--r-xr-x     news     uucp     0 vergehs
      └─ (3) --wxrw-r--       lp     mail     0 ausgeklettheit
```

### 5.33

Can the user **news**, who is a member of the **audio** group, **execute** the file `/ausgewitztest/ansprachte/angehundtest`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-x-wxr-x     mail    voice     0 ausgewitztest
   └─ (2)    d-wx----w-   nobody    audio     0 ansprachte
      └─ (3) -rw-rwxrwx    proxy     mail     0 angehundtest
```

### 5.34

Can the user **nobody**, who is a member of the **audio** group, **write into** the file `/anlaufte/ansprachen/einrabarbse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-xrwx---     mail    audio     0 anlaufte
   └─ (2)    dr-xrwxrwx   nobody    proxy     0 ansprachen
      └─ (3) -r-xrwxrwx   nobody     mail     0 einrabarbse
```

### 5.35

Can the user **student**, who is a member of the **dip** group, **read from** the file `/bewarftest/gesitzer/aufrabarbtete`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w-r-x---    games   floppy     0 bewarftest
   └─ (2)    drwx---rw-  student    cdrom     0 gesitzer
      └─ (3) --wxr-----       lp      dip     0 aufrabarbtete
```

### 5.36

Can the user **news**, who is a member of the **uucp** group, **read from** the file `/ensinner/einkrauung/zersinntest`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w-r-xr-x    proxy     uucp     0 ensinner
   └─ (2)    drwx-w-r-x    games     mail     0 einkrauung
      └─ (3) -r-xrwx-w-     news    proxy     0 zersinntest
```

### 5.37

Can the user **nobody**, who is a member of the **uucp** group, **execute** the file `/ankrauung/anhalts/zertritttest`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w--w-rwx       lp   floppy     0 ankrauung
   └─ (2)    dr-x----wx       lp     uucp     0 anhalts
      └─ (3) --wx--xr--   nobody  student     0 zertritttest
```

### 5.38

Can the user **proxy**, who is a member of the **student** group, **execute** the file `/angewarftest/versinnkeit/angekaesse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-xr---w-    proxy  student     0 angewarftest
   └─ (2)    drwx-w-r-x    games  student     0 versinnkeit
      └─ (3) ---xrw----    proxy    cdrom     0 angekaesse
```

### 5.39

Can the user **student**, who is a member of the **fax** group, **write into** the file `/zergehen/einwarfkeit/vertrittse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx--xrwx   nobody     mail     0 zergehen
   └─ (2)    drwx-wx-w-  student     news     0 einwarfkeit
      └─ (3) -r---w-r--     uucp      fax     0 vertrittse
```

### 5.40

Can the user **nobody**, who is a member of the **fax** group, **execute** the file `/einrennung/aussetzte/angesinnse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxrwx---    games      fax     0 einrennung
   └─ (2)    d------r--     mail      fax     0 aussetzte
      └─ (3) -rwx--xrwx     news      fax     0 angesinnse
```

## Hash for checking if you have all 40 correct

2b2a3a1853e4ccb3f01503e6f69ce127856a879e04548326e574d94a57e54f88

You can check your result with a command like:

```
echo -n "2YY13YY2YYYY3Y3YY2Y22YY11Y2Y1YY2YYY3Y3YY" | \
       shasum -a 512 | cut -c1-64
```

(But don't forget to put your string of Y's and N's in place of those)

If the output of that command matches the hash at the end of this section, then you almost certainly have all 40 correct.