

CSN09101
Networked Services
Week 9: Early revision session

Module Leader: Dr Gordon Russell

Lecturers: G. Russell

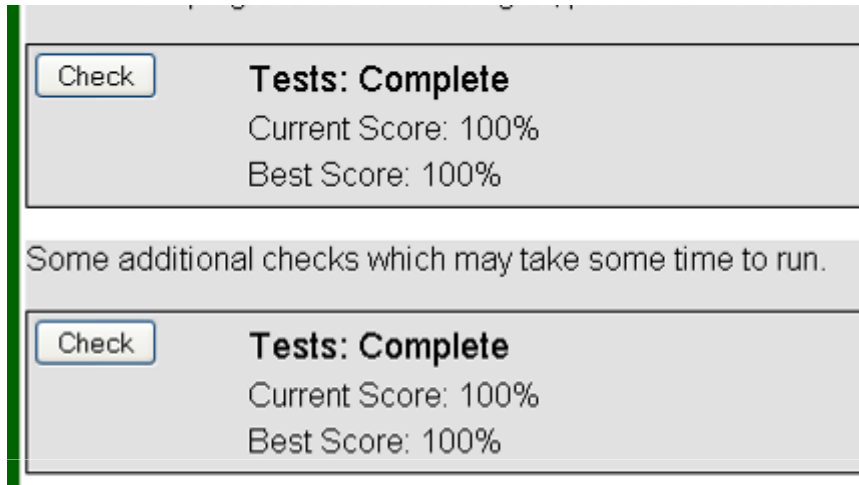
This lecture

- Preparation for Class Test
- Past Paper Exercises

Practical Class Test

Class Test

- The class test is a timed event, lasting up to 1 hour 30 minutes.
- All the marks are on accuracy.
- There is no advantage in finishing early unless you correctly answer all the questions.
- It is only the best (i.e. Highest mark) for each question which is used to calculate your score.
- Remember the class average should be 55%. That is what the University recommends.
- You will be emailed after a few days with your final mark and how the mark was calculated.



The screenshot shows a test interface with two identical sections. Each section contains a 'Check' button, the text 'Tests: Complete', 'Current Score: 100%', and 'Best Score: 100%'. Between the two sections is a message: 'Some additional checks which may take some time to run.'

- Each question has 1 or more Check buttons.
- You get the mark back immediately (Current Score).
- Press the Check button as often as you like
- Your actual score is the highest Current Score for that check (shown in Best Score). So don't worry if you has 100% then get 0%, as your final mark uses the 100%.

- Each question is weighted equally. If there are 4 questions then they are worth $100/4$ each.
- If a question has two check buttons, then each check score is worth the question score / 2. Thus each button is weighted equally within a question.

- The practical test is OPEN BOOK.
- The final exam is also OPEN BOOK.
- This means you can take into the exam any notes or books you like.
- You are not allowed electronic support (except the computer you are sitting at for the practical test). For instance, you cannot take your own laptop into the class.
- In the practical test, you can use any online resource you like, so long as you are not communicating with another person (so google is ok, but not email or instant messenger).

WARNING

- OPEN BOOK does not mean you don't have to study.
- In some ways it is harder than a closed book exam, as I won't ask questions where the answers are directly from the notes.
- You have to study. You have to study. And please remember to study.
- Each year I see students trying to answer questions involving users by googling "edit users"... This does not work!
- In the final written exam some people will be using a computer to type their exam answers rather than using paper (e.g. to compensate them for a disability). You are only allowed to use the computer to access the word processor in that case. But in the class test you are welcome to try and google the answers...

Answering Questions

- The practical will be very like the tutorial “diag”.
- You need to solve problems or produce working configurations.
- It can ask you to do things you have not done before. However, with a little thinking you should find that the tools you know and the files you have used will be sufficient to help.
- Sometimes you might need a new flag to help you. Try man on the command you think is the “almost” solution.
- I can complete the exam in less than 5 minutes...

Hints

- If it is not working think about all the things needed to make it work, and check them one at a time.
- If it is a service problem, feel free to look at the error logs (rather than telepathy).
- If it is hopeless reboot with a fresh image and try again in that question (really hopeless).
- If things are just weird ask for help. I will help you if the problem is not something I am actually testing (e.g. you cannot start apache because of a known apache bug).

- Do the questions in the order shown.
- If you jump about between questions you will become confused.
- YOU MUST DO THE CHECKS IN THE ORDER SHOWN.
- If you configure your firewall, you may find you have blocked other services. Next trying apache or DNS will leave you doomed without resetting the firewall
 - Firewall reset:
\$ /etc/init.d/iptables restart
- If you are stuck but think everything is ok, I don't mind you talking to me. I will either reply "you should know better" or if I think the problem is something I have not taught then I will suggest a solution (e.g. did you read the question?).

GOOD LUCK

Exam Questions

Possible Questions

- Remember, these slides were created long before the exams were written.
- The format of the exam is 20 question short answer, with 2 marks per question.
- These possible questions are only a possibility of what sort of questions might be asked in the real exam...

Question 1

What is the normal difference between a shell prompt which ends with the character '#' and one which ends with a different character (like '%' or '\$' for instance)?

Question 2

What is the home directory of root, and why is it not /home?

Question 3

The following commands are typed on a Unix computer.

```
mkdir temp  
cd temp/  
touch hia  
mkdir hua  
cd hua/  
cp /etc/group .  
cd ../../  
ls temp/*.*
```

What is printed on the screen in response to the last line of the commands?

Question 4

What does rc5 mean and what does 66 mean in the pathname:
/etc/rc5.d/K66uta.

Question 5

- The ethernet devices shown are from the point of view of M1.
Assume MGW is the gateway machine for this cluster of machines.
Also from the viewpoint of M1, the following is known:

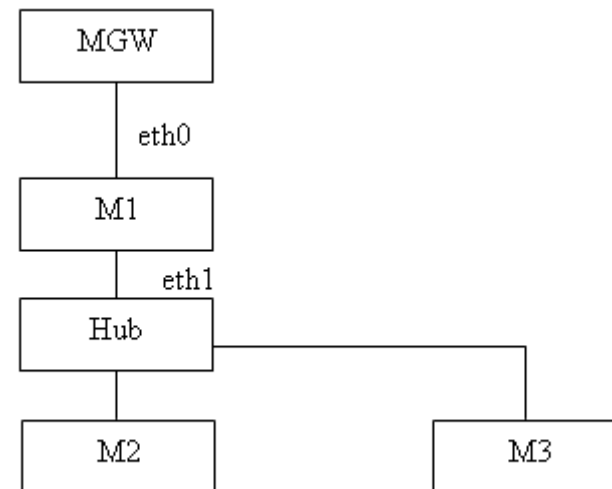
Eth0 : 162.2.1.20/16

Eth1 : 162.1.1.20/16

MGW is 162.2.1.1

M2 is 162.1.1.4

M3 is 162.1.2.10



Supply ifconfig lines for this scenario for use on M1.

Question 6

- The ethernet devices shown are from the point of view of M1.
Assume MGW is the gateway machine for this cluster of machines.
Also from the viewpoint of M1, the following is known:

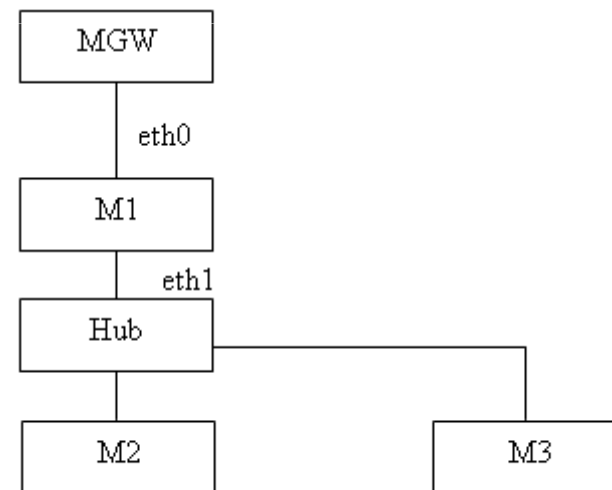
Eth0 : 162.2.1.20/16

Eth1 : 162.1.1.20/16

MGW is 162.2.1.1

M2 is 162.1.1.4

M3 is 162.1.2.10



Continuing from the previous question, supply ip route commands for M3.

Question 7

The file `/proc/net/arp` contains three pieces of information about each network device detected. What is the information stored, and why is this needed?

Question 8

A packet arriving on eth0, which is then routed for output on eth1 would be handled by which chain of the filter table?

Question 9

Show the iptable commands relevant in defining a forwarding filter allowing only related or established connections in both directions, as well as http from the internet, to be accepted and all other forwarding traffic to be rejected. You can assume eth0 for the gateway connection and eth1 for internal traffic.

Question 10

Consider the following iptables configuration:

```
iptables -P OUTPUT drop
```

```
iptables -A OUTPUT -m state --state  
RELATED,ESTABLISHED -j ACCEPT
```

```
iptables -A OUTPUT -p udp --dport ssh -j ACCEPT
```

Would outgoing ssh connection requests be blocked? Give an explanation for your answer.

Question 11

After typing the following commands, name two parameters that would be shown if the request was successful.

```
$ telnet grussell.org  
HEAD / HTTP/1.1  
Host: www.grussell.org
```

Question 12

Name four pieces of information which you would expect to find in the apache access log?

Question 13

Write `mod_rewrite` instructions so that only ip address 190.1.1.1 can see a site, and anyone else should be externally redirected to <http://www.napier.ac.uk>.