Unix Server Access

By Rahul Sharma

This document presents the relevant steps to gain access to the Unix servers hosted by the University of Melbourne to carry out your tests for the Network Analysis Assignment (if you need it). You can work on your own laptop/ device if you want to however, do make sure that all your tests are run from the same network.

The University Unix servers are pre-configured with Traceroute, Ping, and iperf (2 and 3) so you do not need to install anything yourself. You can logon to these servers (using SSH) and use these utility tools directly as long as you are connected to the University Network. If you wish to access these servers from your home then you need to use a VPN (CISCO VPN) in order to tunnel into the University network and SSH into these servers. You can download the VPN from here:

http://studentit.unimelb.edu.au/findconnect/vpn

Servers Made Available:

- digitalis.eng.unimelb.edu.au (Runs iperf2; **Update:** Might have iperf3 as well now)
- digitalis2.eng.unimelb.edu.au (Runs iperf3; **Update:** Might have iperf2 as well now)

Steps to Login:

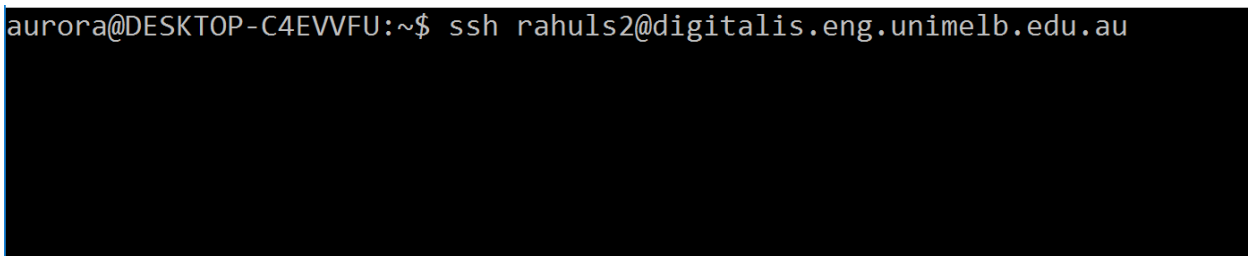
For Linux and Mac Users:

If you are using a Linux based system (I am using the Ubuntu bash shell on Windows 10) then open your terminal and type the command:

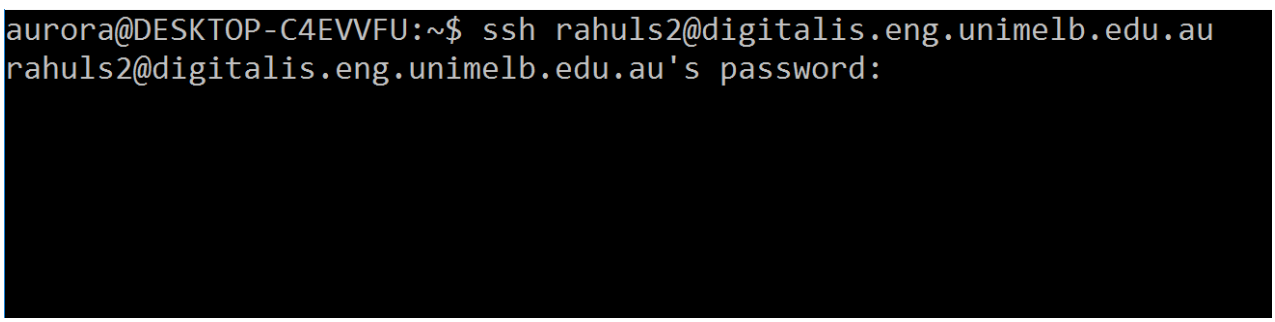
ssh <your user name here>@digitalis.eng.unimelb.edu.au (for the first server)

ssh <your user name here>@digitalis2.eng.unimelb.edu.au (for the second server)

For example – my username is: rahuls2, so I will type (See image below)



Press Enter. You will now be prompted to enter a password (the one you use to Login to the LMS).



As you type, you can observe that the password field will be left blank on the screen. Please note that Unix based systems do not display the password in plain text or even asterisks as you type or anything. Anything and everything you type will be recorded by the OS and as soon as you finish typing your password and press Enter, it will try to validate the info entered against your credentials (the one you use for the LMS). If your credentials match, you will be shown a bash prompt on the screen as seen below:

```
aurora@DESKTOP-C4EVVFU:~$ ssh rahuls2@digitalis.eng.unimelb.edu.au
rahuls2@digitalis.eng.unimelb.edu.au's password:
Last login: Fri Jul 21 20:23:52 2017 from e-nat-unimelb-128-250-0-195.uniaccess.unimelb.edu.au
-bash-4.1$
```

You can now use Ping, Traceroute, and iperf2 on this server as follows:

```
-bash-4.1$ ping -c 4 www.google.com
PING www.google.com (172.217.25.132) 56(84) bytes of data.
64 bytes from syd15s03-in-f4.1e100.net (172.217.25.132): icmp_seq=1 ttl=51 time=13.0 ms
64 bytes from syd15s03-in-f4.1e100.net (172.217.25.132): icmp_seq=2 ttl=51 time=13.0 ms
64 bytes from syd15s03-in-f4.1e100.net (172.217.25.132): icmp_seq=3 ttl=51 time=13.0 ms
64 bytes from syd15s03-in-f4.1e100.net (172.217.25.132): icmp_seq=4 ttl=51 time=13.0 ms

--- www.google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3016ms
rtt min/avg/max/mdev = 13.060/13.075/13.091/0.115 ms
-bash-4.1$
```

For Ping, make sure you use the “-c <some number>” parameter to send a set number of packets. If you do not set this, by default – Unix will keep sending out ICMP messages till the end of time/ end of your patience/ your friendly systems admin gets annoyed/ server crashes/ unexpected scenarios pop-up (appearance of Godzilla, etc).

```
-bash-4.1$ traceroute -nw 1 www.google.com
traceroute to www.google.com (172.217.25.132), 30 hops max, 60 byte packets
 1  128.250.106.3  0.652 ms  1.544 ms  1.598 ms
 2  172.18.86.73  0.333 ms  0.377 ms  0.429 ms
 3  172.18.65.21  0.488 ms  0.532 ms  0.456 ms
 4  172.19.1.181  0.376 ms  0.424 ms  0.477 ms
 5  172.19.1.182  0.521 ms  0.502 ms  0.492 ms
 6  172.18.66.254  0.419 ms  0.479 ms *
 7  138.44.64.62  0.586 ms  0.643 ms  0.587 ms
 8  113.197.15.174  1.139 ms  1.096 ms  1.076 ms
 9  202.158.210.41  12.784 ms  12.774 ms  12.819 ms
10  108.170.247.81  12.623 ms 108.170.247.49  12.658 ms 108.170.247.81  12.596 ms
11  74.125.37.155  12.711 ms  12.707 ms  12.692 ms
12  172.217.25.132  12.958 ms  12.957 ms  12.708 ms
-bash-4.1$
```

For Traceroute, you must use the param “-nw 1” instead of “-nw1”. Also, its normal to get an entry as seen for hop 10. You need to try and identify why it is so (if you get the same thing).

For iperf we need an iperf server to be active for our iperf client to connect to. We have provided a list of iperf servers in the main spec, if for some reason they do go down – please refer to the link shown below to find other servers:

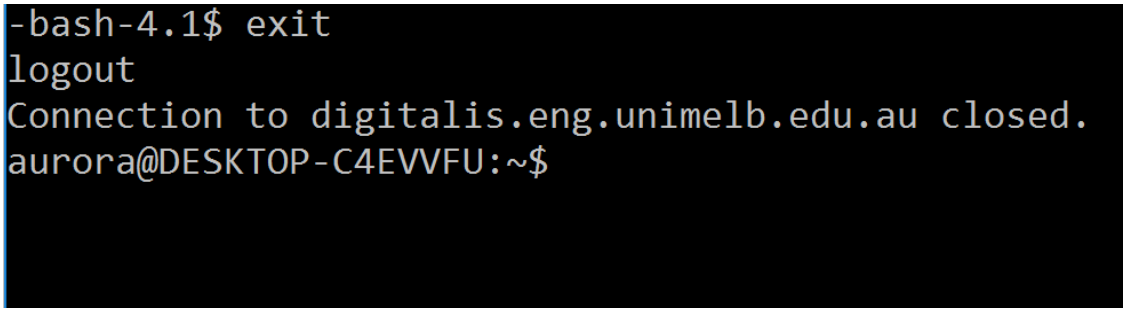
https://iperf.fr/iperf-servers.php

Alternatively, you can seek out other iperf servers (from other sources) as well if you want to.

If you want to exit out of the Unix server, type:

exit

Then press enter.



If you want to access digitalis2.eng.unimelb.edu.au, then follow the same steps as before to ssh into the machine.

You can use these servers to try other utilities as well to get familiar with Linux if you wish to but make sure you understand the security implications associated when using these servers.

For Windows Users:

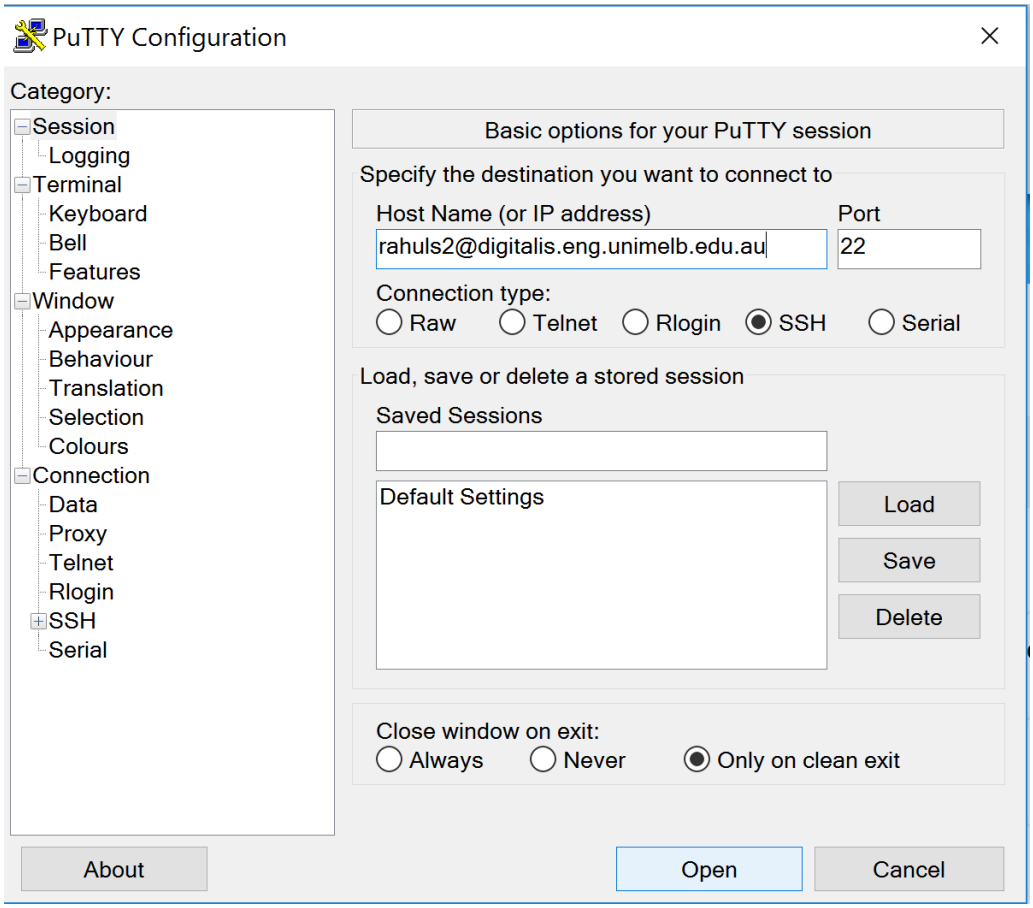
If you have Windows 10 running, I would highly suggest you to download the Ubuntu subsystem and follow the steps for Linux as shown above. If you are using an older version of Windows and/ or do not want to use the Ubuntu subsystem then download a software called PuTTY or any SSH client you like.

For PuTTY, visit: http://www.putty.org/

Open PuTTY and type the hostname as follows:

<your user name for the LMS>@digitalis.eng.unimelb.edu.au

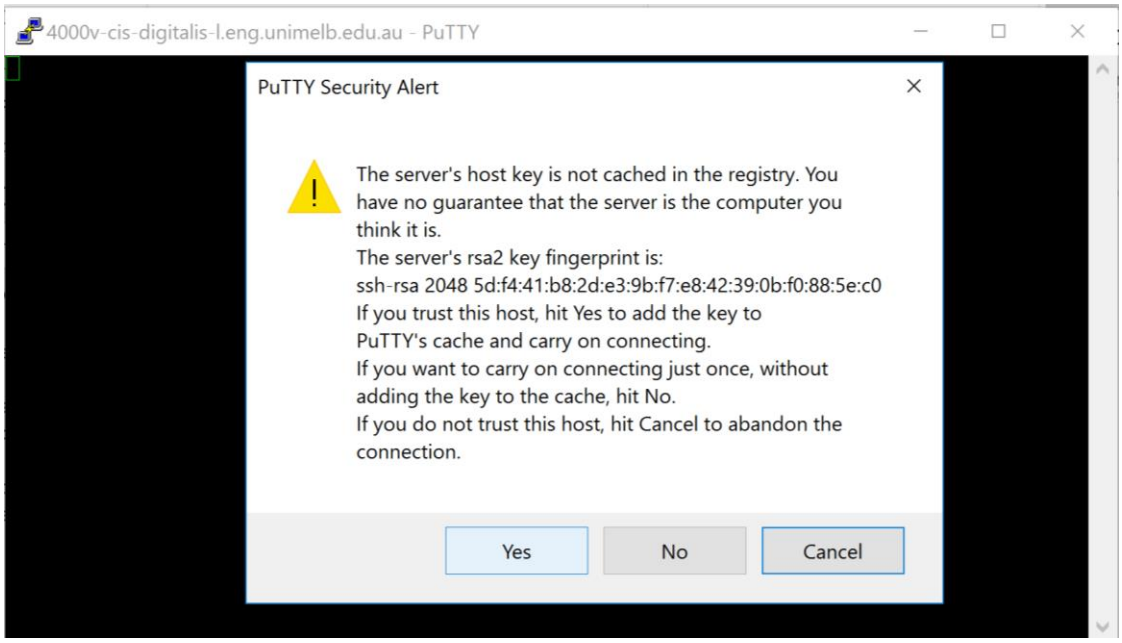
Leave the other fields as it is (for ex – port 22 for SSH, and chosen option as SSH in PuTTY).



Click on Open.

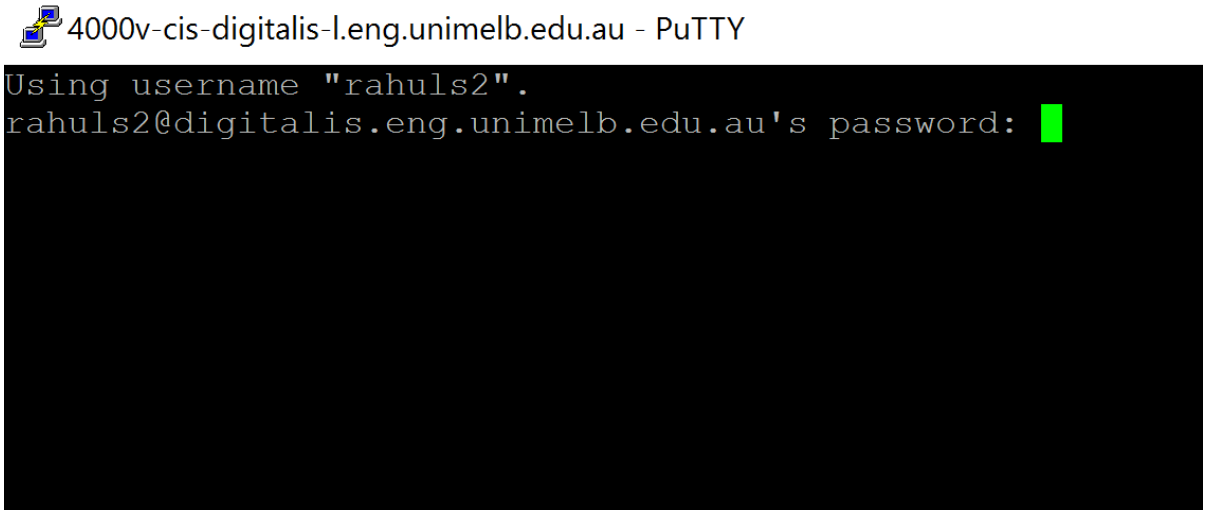
This will create an SSH connection for you using port 22 (port for SSH as set by IANA) using your username as the key to authenticate you on the Unix servers (LDAP probably containing your access information and permissions).

Also, locally PuTTY will ask you to save the key of this server to authenticate it for future connections. In accordance with this measure, you will see a pop-up appear on your screen asking you whether you wish to save the key for this server.

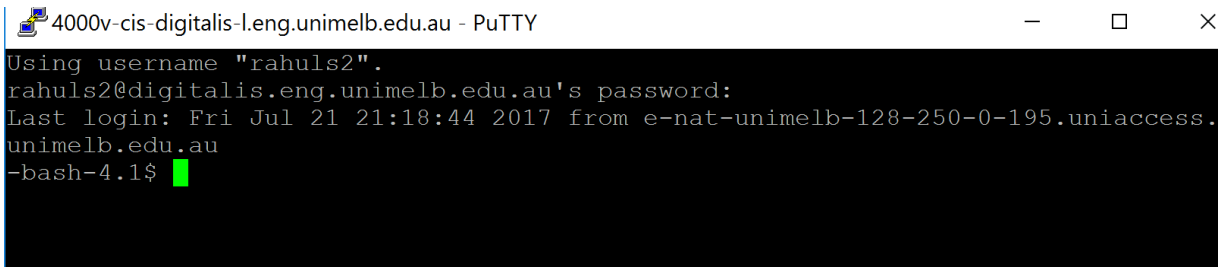


Click yes to save the key and list it as safe otherwise you will get this pop-up everytime you use it.

Now you will see a prompt which will ask you to enter your password (same as the one used for the LMS). Type your password and press enter (Please Note: your password will not be shown on the screen as you type. It is being stored in the session but will not be displayed – which is the default behaviour of Unix systems with passwords).



After pressing enter, if your credentials are correct you will be shown a bash shell prompt.



You can now try Ping, traceroute, and iperf2 as shown in the Linux section of this guide. If you wish to use iperf3 then follow the same steps as shown in this but use the servers name digitalis2 instead of digitalis.

Note:

- Do not use these servers to host/ torrent files/ download illegal content. Use these servers under the assumption that someone is monitoring every move that you make when logged in.
- You do not need root access to these servers.
- These servers will be available to you for the entire duration of this subject following which the system admins might revoke your access. Keeping this in mind, do not store anything on these servers (have a local backup) as it will most likely be lost or deleted; although the directories might be the global one – its risky. We are not responsible for you losing your data.
- If during the semester you are unable to access these servers, kindly bring it to the attention of the Subject Coordinator or the Head Tutor ASAP.
- For iperf, check out which server runs which version of iperf and use the relevant server accordingly. Some servers run either iperf2 or 3 but the systems are getting updated so you may have both versions running on the same server – please test this.