SIT103/SIT772 Fundamentals of Database

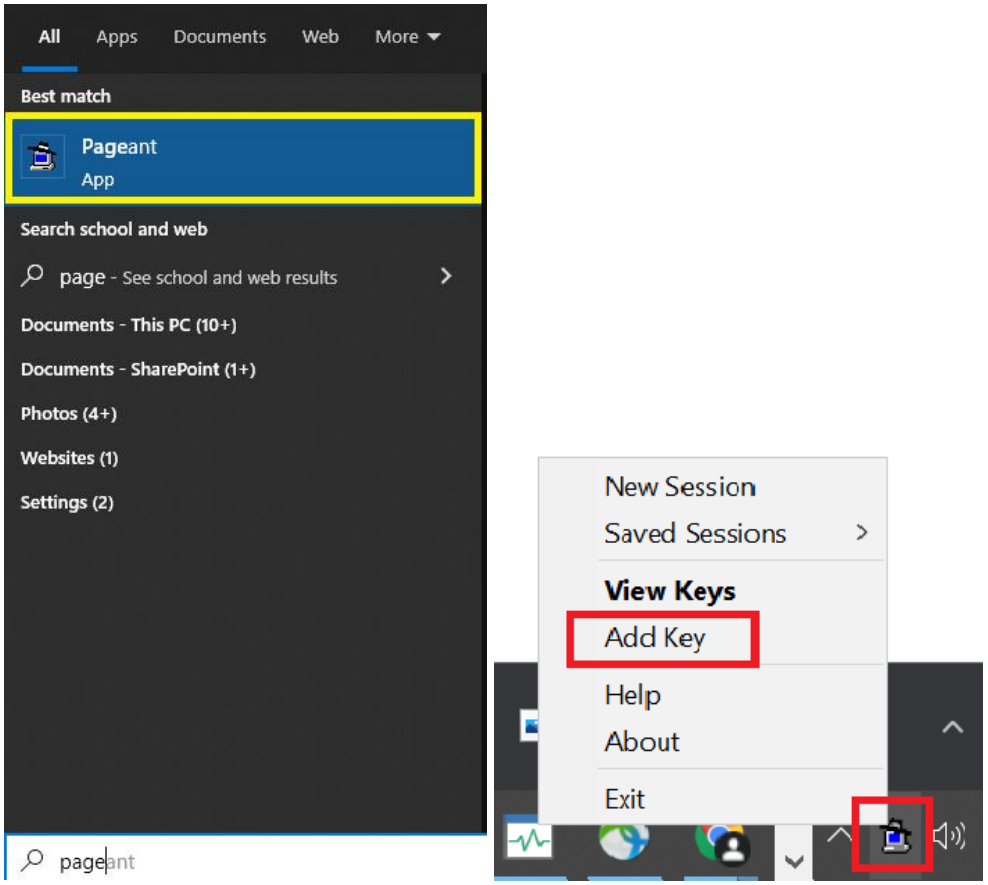
Set up ORACLE Access

1. Set up ORACLE connection

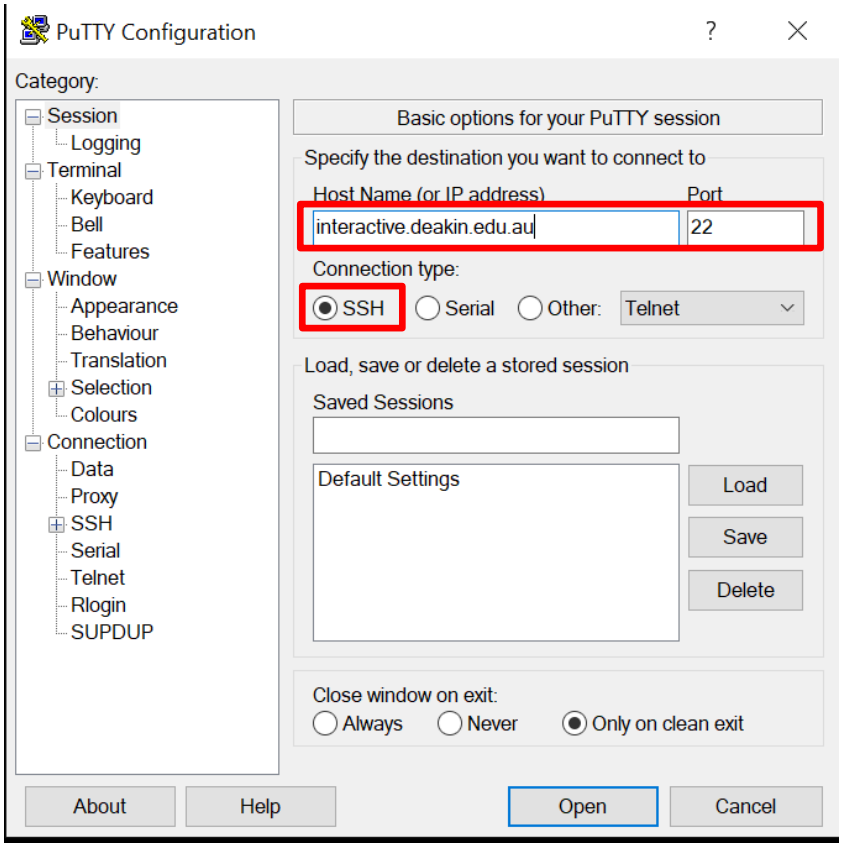
Follow instructions available here to set up connection to Deakin University ORACLE server. **Please note that you need to follow the instructions step by step carefully.**

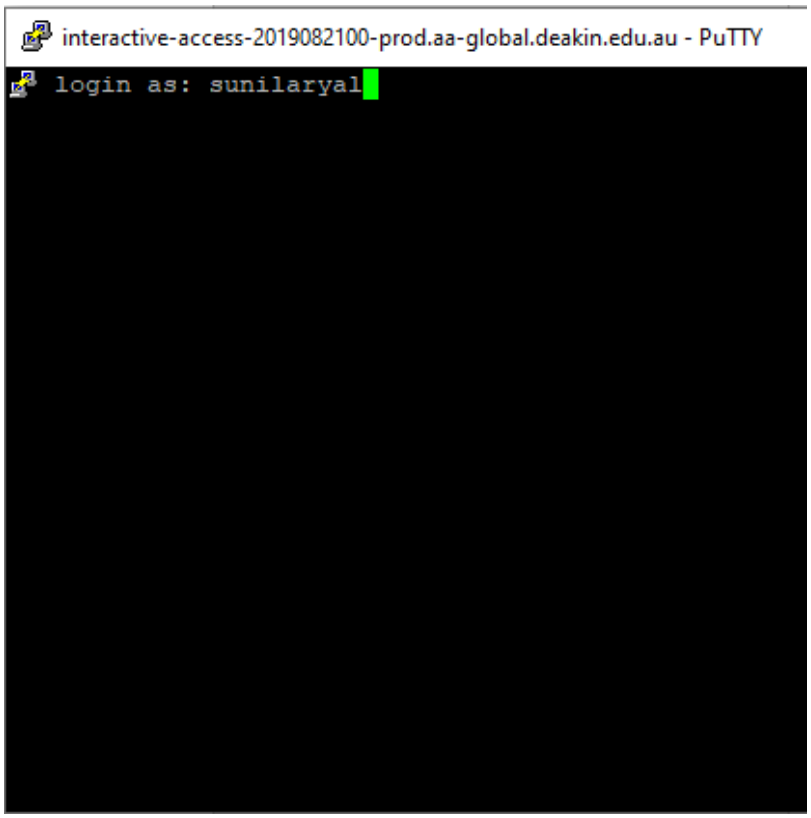
The instructions are also provided in the PDF file called "*IT Help - Using the Oracle Staff Student Interactive Database (SSID).pdf*" on the unit site.

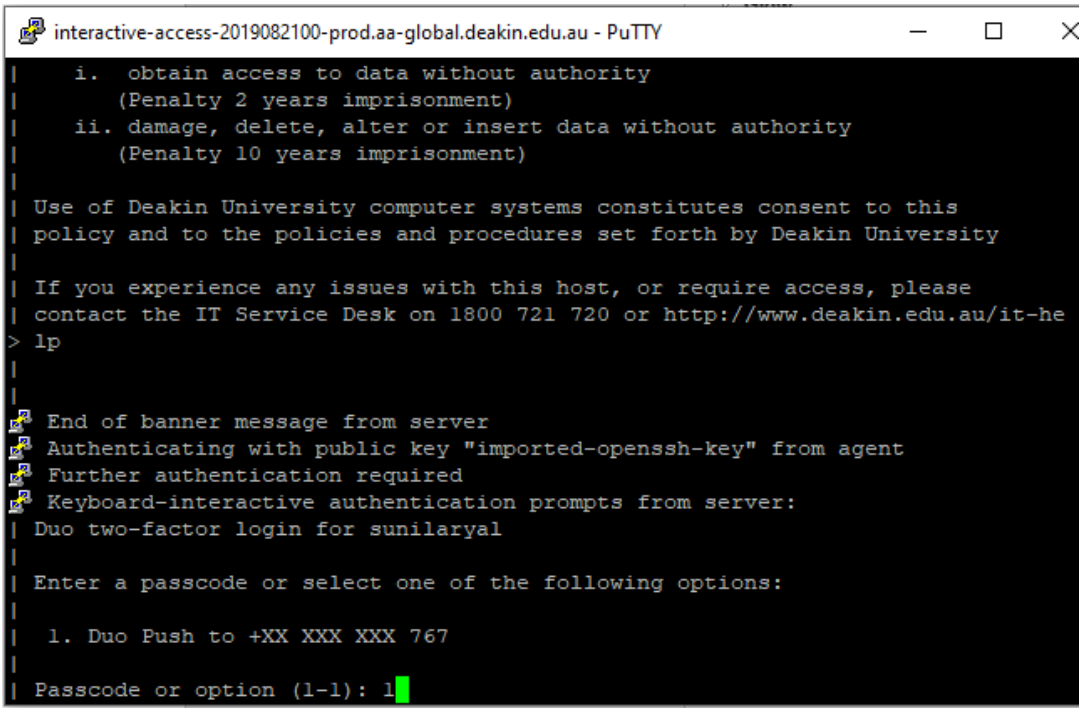
Note: For subsequent connection, you need to start **Pageant** and **Add Key** (to add the key you created and stored while setting up the connection for the first time).



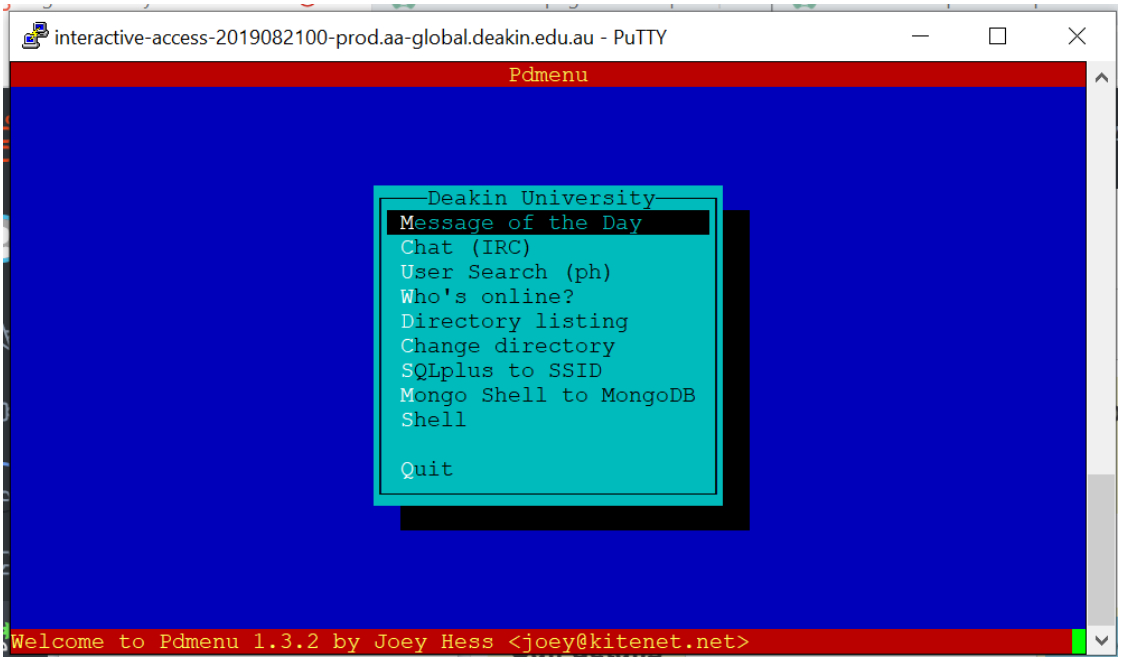
Then, you can open PuTTY and connect to SSID using your Deakin Credentials.


PuTTY Configuration
Category:
Session
Logging
Terminal
Keyboard
Bell
Features
Window
Appearance
Behaviour
Translation
Selection
Colours
Connection
Data
Proxy
SSH
Serial
Telnet
Rlogin
SUPDUP
Basic options for your PuTTY session
Specify the destination you want to connect to
Host Name (or IP address)
Port
interactive.deakin.edu.au
22
Connection type:
SSH
Serial
Other:
Telnet
Load, save or delete a stored session
Saved Sessions
Default Settings
Load
Save
Delete
Close window on exit:
Always
Never
Only on clean exit
About
Help
Open
Cancel


interactive-access-2019082100-prod.aa-global.deakin.edu.au - PuTTY
login as: sunilaryal

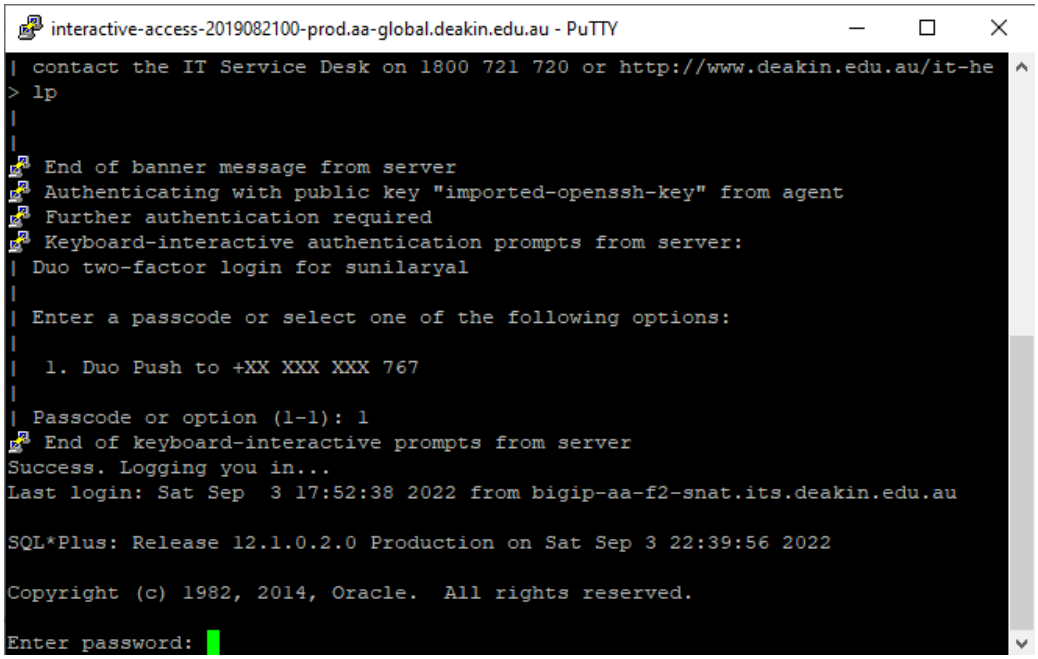


After **multifactor authentication**, you will be connected to SSID successfully.



2. Access the Oracle database (SSID)

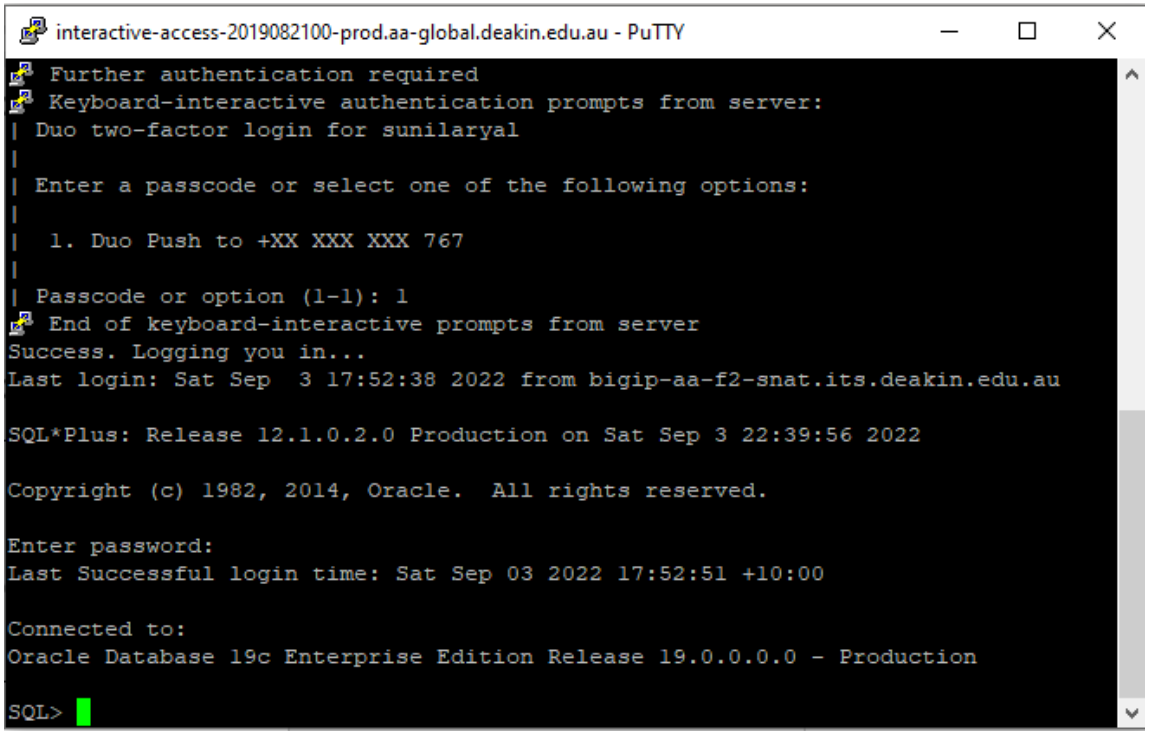
Press up or down key on your keyboard to move the cursor to the option “**SQLPlus to SSID**" in the menu, then hit the Enter key. You will see the following screen, prompting you to enter your Deakin Oracle database password.



NOTE:

Your **Oracle database password is your Deakin password** (by default).

When you are typing in your Deakin password within this window, **NO masking characters will be displayed**. Don't worry about it as this is the system setting. You only need to make sure the typing is correct.



After the "Enter password:" prompt, type in your Deakin password correctly and then hit the "Enter" key, the following window will display with a SQL> prompt. This means that you are successfully connected to your own database in Deakin Oracle database management system (DBMS). Now you can type and run SQL or SQL*Plus commands

at the SQL> prompt.

NOTE:

If you typed in your Deakin password correctly but cannot see the above screen, the most possible reason is that your password contains some special characters, such as *. Either change your password or try password within double quote.

If you want to quit Deakin Oracle DBMS, simply type in "quit" or "exit" under the "SQL>" prompt and hit Enter key.

Now you connected to your ORACLE Database.

3. Create tables within your database using SQL statements

Employee Table

employeeName	street	city
Jones	Main	Harrison
Smith	North	Rye
Hayes	Main	Harrison
Curry	North	Rye
Lindsay	Park	Pittsfield
Turner	Putnam	Stamford
Williams	Nassau	Princeton
Adams	Spring	Pittsfield

Company Table

CompanyName	City
Waltons	Harrison
Meyer	Rye
Waltons	Rye
Woolworths	Pittsfield
Tweeties	Harrison
Firebrand	Woodside

Works Table

EmployeeName	CompanyName	Salary
Jones	Tweeties	21000
Smith	Waltons	22000
Hayes	Woolworths	19000
Curry	Meyer	25000
Lindsay	Meyer	9000
Turner	Firebrand	20000
Williams	Tweeties	18000
Adams	Meyer	22000

Manages Table

EmployeeName	ManagerName
Jones	Collins
Smith	Collins
Hayes	Wills
Curry	Wills
Lindsay	Mulhare
Turner	Mulhare
Williams	Bond
Adams	Bond

You can create the above database and load data using one of the following two ways.

A. From SQL prompt

At the SQL> prompt, type and run (by hitting the Enter key) the following four SQL commands ***individually*** to create the structures for the tables *employee*, *works*, *manages* and *company*.

```
CREATE TABLE employee
(employeeName CHAR(15) NOT NULL,
 street       CHAR(15),
 city         CHAR(10),
 PRIMARY KEY (employeeName));

CREATE TABLE works
(employeeName CHAR(15) NOT NULL,
 companyName  CHAR(15)  NOT  NULL,
 salary  NUMBER(7),
 PRIMARY KEY (employeeName, companyName),
 CHECK (salary >=0));
```

```
CREATE TABLE manages
(employeeName CHAR(15) NOT NULL,
 managerName  CHAR(15),
 PRIMARY KEY (employeeName));


CREATE TABLE company
(companyName CHAR(15) NOT NULL,
 city        CHAR(10) NOT NULL,
 PRIMARY KEY (companyName, city));
```

After the table structures are created in the database, insert the sample data (rows / tuples) shown in the above tables into the database tables individually:

Example syntax for inserting *rows* / *tuples* into a table is as follows:

```
INSERT INTO company
     VALUES('Meyer', 'Rye');

INSERT INTO employee
     VALUES ('Jones', 'Main', 'Harrison');

INSERT INTO works
     VALUES ('Jones', 'Tweeties', 15000);

INSERT INTO manages
     VALUES ('Jones', 'Collins');
```

Note: The data type (e.g., CHAR or NUMBER) of an inserted data must match the data type of the corresponding column in the table structure. For example, in table *company*, the data type of the column "companyName" is character (CHAR), its corresponding inserted data must be characters and must be within single quotes in the INSERT command, like 'Meyer'. For a number data type (e.g. NUMBER for the *salary* in the table *works*), however, the inserted value (e.g. 15000) does not need quotes.

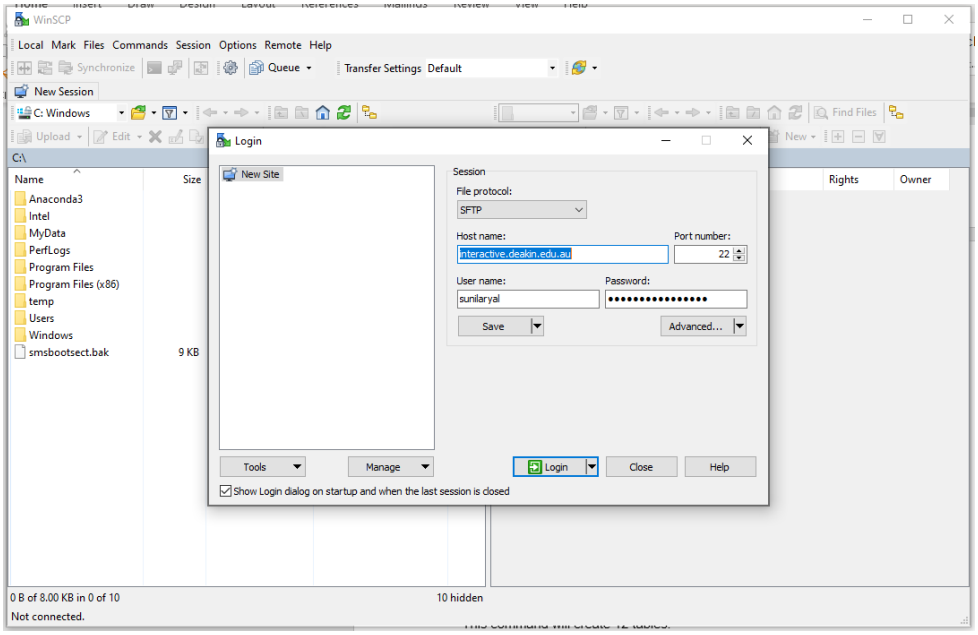
Repeat `INSERT` command to enter all sample data into the four tables.

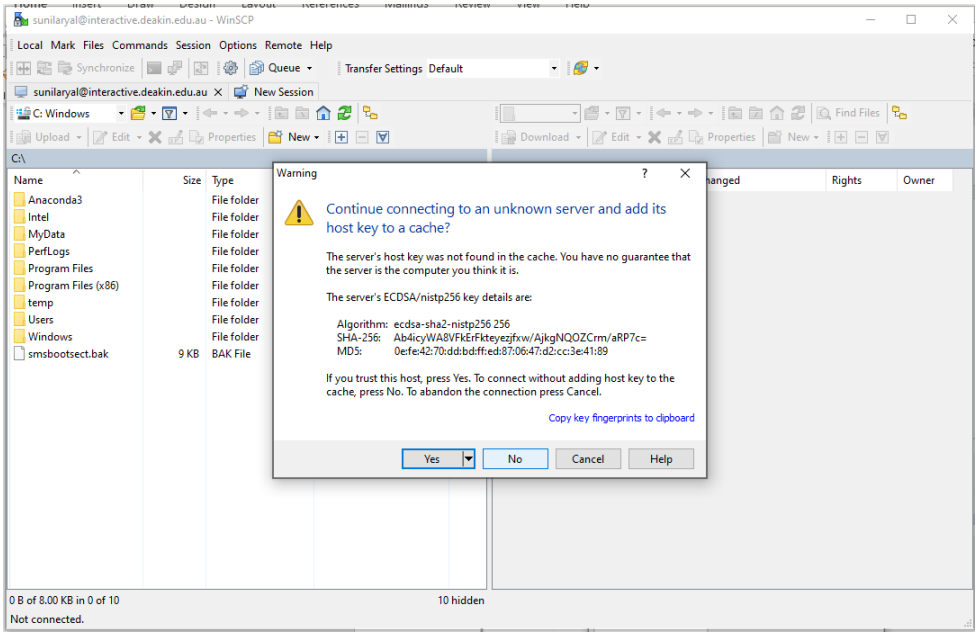
B. Using scripts

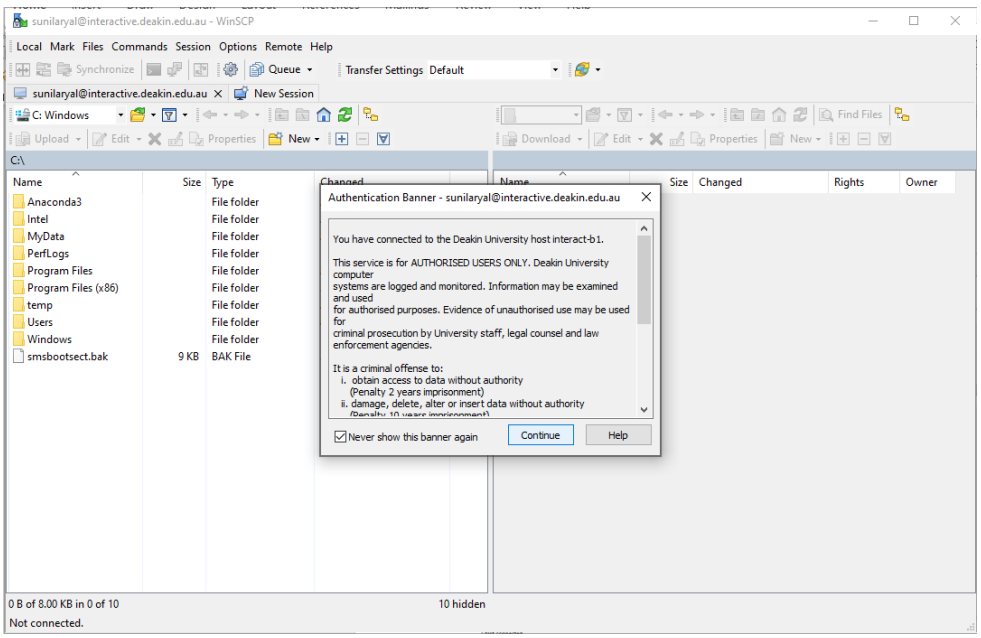
You can write command in a *.sql* file using any editor like Notepad or Notepad++, upload the *.sql* script file to your home directory in the Deakin's interactive server and run it from your Oracle SQL prompt to create tables and insert records at once. You can upload a script file in the server by either:

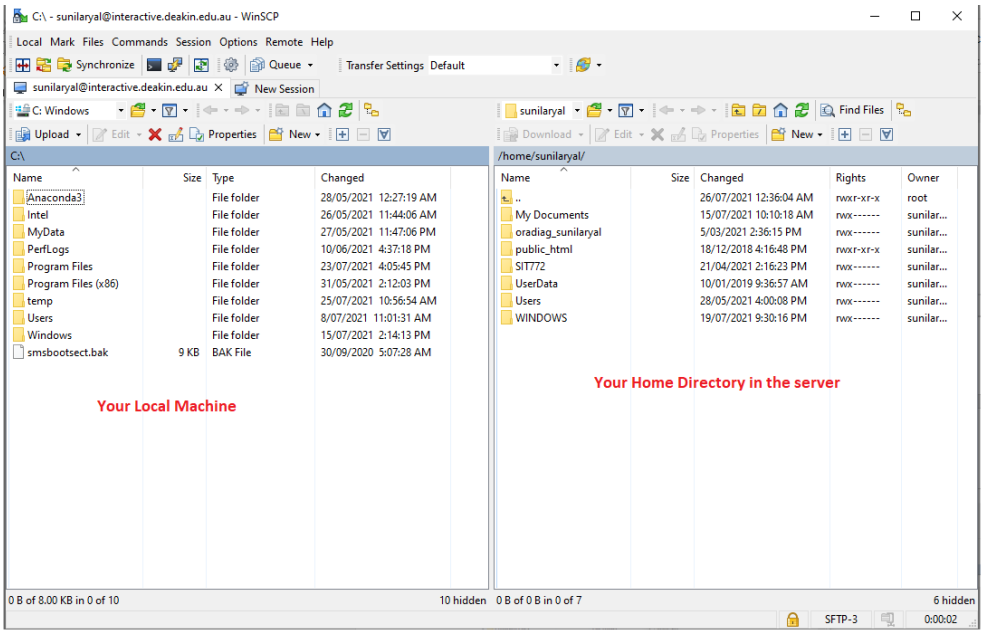
1. Mapping the network drive to your local computer. Please check following pages for how to map your network drive locally.
   Windows and MacOS
   Please note that you must connect to Deakin's network via VPN. See here for VPN connection. You can then copy the script file into the local mapped Deakin Network drive and access it from your SQL prompt in ORACLE.

2. Using secure file transfer client such as WinSCP, FileZilla, Cyberduck. You can download anyone of them (e.g., WinSCP) and use like Putty with Deakin Student login credentials. There are many help tutorial/videos are available on the internet. Screenshots using WinSCP are provided below. Please make sure that **Pageant** is running, and key is added before attempting login to remote server from these file transfer clients.


WinSCP
Local Mark Files Commands Session Options Remote Help
Synchronize
Queue
Transfer Settings Default
New Session
C: Windows
Upload
Edit
Find Files
C:\
Name
Size
Rights
Owner
Anaconda3
Intel
MyData
PerfLogs
Program Files
Program Files (x86)
temp
Users
Windows
smsbootsect.bak
9 KB
Login
New Site
Session
File protocol:
SFTP
Host name:
Port number:
interactive.deakin.edu.au
22
User name:
Password:
sunilaryal
Save
Advanced...
Tools
Manage
Login
Close
Help
Show Login dialog on startup and when the last session is closed
0 B of 8.00 KB in 0 of 10
10 hidden
Not connected.


sunilaryal@interactive.deakin.edu.au - WinSCP
Local Mark Files Commands Session Options Remote Help
Synchronize
Queue
Transfer Settings Default
sunilaryal@interactive.deakin.edu.au
New Session
C: Windows
Upload
Edit
Properties
New
Download
Find Files
C:\
Name
Size
Type
Rights
Owner
Anaconda3
Intel
MyData
PerfLogs
Program Files
Program Files (x86)
temp
Users
Windows
smsbootsect.bak
9 KB
File folder
BAK File
Warning
Continue connecting to an unknown server and add its host key to a cache?
The server's host key was not found in the cache. You have no guarantee that the server is the computer you think it is.
The server's ECDSA/nistp256 key details are:
Algorithm: ecdsa-sha2-nistp256 256
SHA-256: Ab4icyWA8VFkErFkteyezjfxw/AjkgNQOZCrm/aRP7c=
MD5: 0e:fe:42:70:dd:bd:ff:ed:87:06:47:d2:cc:3e:41:89
If you trust this host, press Yes. To connect without adding host key to the cache, press No. To abandon the connection press Cancel.
Copy key fingerprints to clipboard
Yes
No
Cancel
Help
0 B of 8.00 KB in 0 of 10
10 hidden
Not connected.


sunilaryal@interactive.deakin.edu.au - WinSCP
Local Mark Files Commands Session Options Remote Help
Synchronize
Queue
Transfer Settings Default
sunilaryal@interactive.deakin.edu.au
New Session
C: Windows
Upload
Edit
Properties
New
Download
Find Files
C:\
Name
Size
Type
Changed
Rights
Owner
Anaconda3
Intel
MyData
PerfLogs
Program Files
Program Files (x86)
temp
Users
Windows
smsbootsect.bak
9 KB
File folder
BAK File
Authentication Banner - sunilaryal@interactive.deakin.edu.au
You have connected to the Deakin University host interact-b1.
This service is for AUTHORISED USERS ONLY. Deakin University computer systems are logged and monitored. Information may be examined and used for authorised purposes. Evidence of unauthorised use may be used for criminal prosecution by University staff, legal counsel and law enforcement agencies.
It is a criminal offense to:
i. obtain access to data without authority
(Penalty 2 years imprisonment)
ii. damage, delete, alter or insert data without authority
Never show this banner again
Continue
Help
0 B of 8.00 KB in 0 of 10
10 hidden
Not connected.



Now you can move flies between the two locations by drag and drop.

Once you copy the files to your home directory in the Deakin Interactive Server, you can run the scripts from your ORACLE prompt by running the command "@<filename.sql>". For example:

```
SQL> @tables.sql
```

Some SQL and SQL*Plus commands

Now, your database has four tables (i.e., *employee*, *works*, *manages* and *company*) with sample data.

To find out all tables owned by you, type the following SQL command at the SQL> prompt:

```
SQL> SELECT table_name FROM user_tables;
```

To view a table structure, you can use a SQL*Plus command called `DESCRIBE` (or `DESC`). The command format is

```
SQL> DESCRIBE <tableName>
```

For example, to view the structure of table *employee*, type the following SQL*Plus command at the SQL> prompt:

```
SQL> DESCRIBE employee
```

To view the data in a table, you can use the SQL command SELECT. The command format is

```
SQL> SELECT * FROM <tableName>;
```

For example, to view the data in table *employee*, type the following SQL command at the SQL> prompt:

```
SQL> SELECT * FROM employee;
```