Week 1

Introduction to the environment

Builder queries

Outline

- In the lab this week:
  - Architecture of an Oracle database
    - Client/server and SQL Developer - how to set up
    - Where to find SQL Developer
    - **Setting up a connection**
    - **Accessing another schema**
    - Running your queries
    - Saving your queries.
    - **Writing a student manipulation transaction.**

Oracle Architecture

- An oracle database consists of:
  - A large amount of stored data on disk.
  - An instance, which is a set of programmes that run and allow:-
    - Users to request services
    - Manipulation of the data on disk.
  - Without the instance, the database is not usable
    - It is like having a book and not being able to read.

Client / server architecture

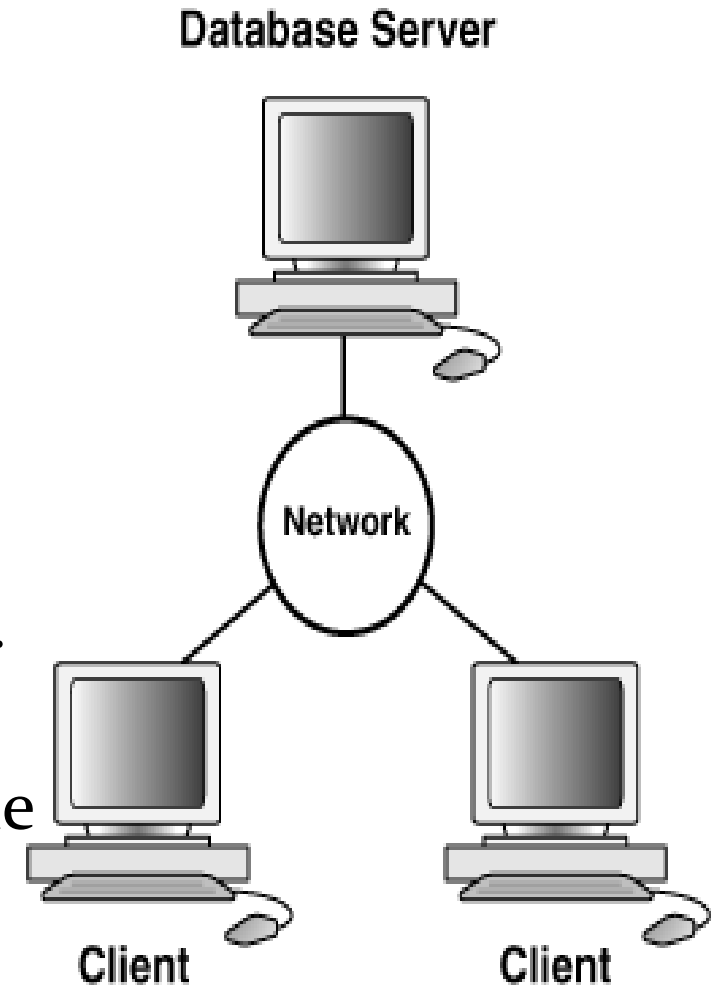
- The database application and the database are separated into two parts:
  - a front-end or **client** portion, and
  - a back-end or **server** portion

Client / server architecture

- The **client** interacts with a user through the keyboard, screen, and pointing device, such as a mouse. It relays information to and from the server.
- The **server** runs the Oracle software that access and manipulates the data on an Oracle database, for concurrent, shared data access.
- The client and server may be on the same machine, but normally on a network, they are not.

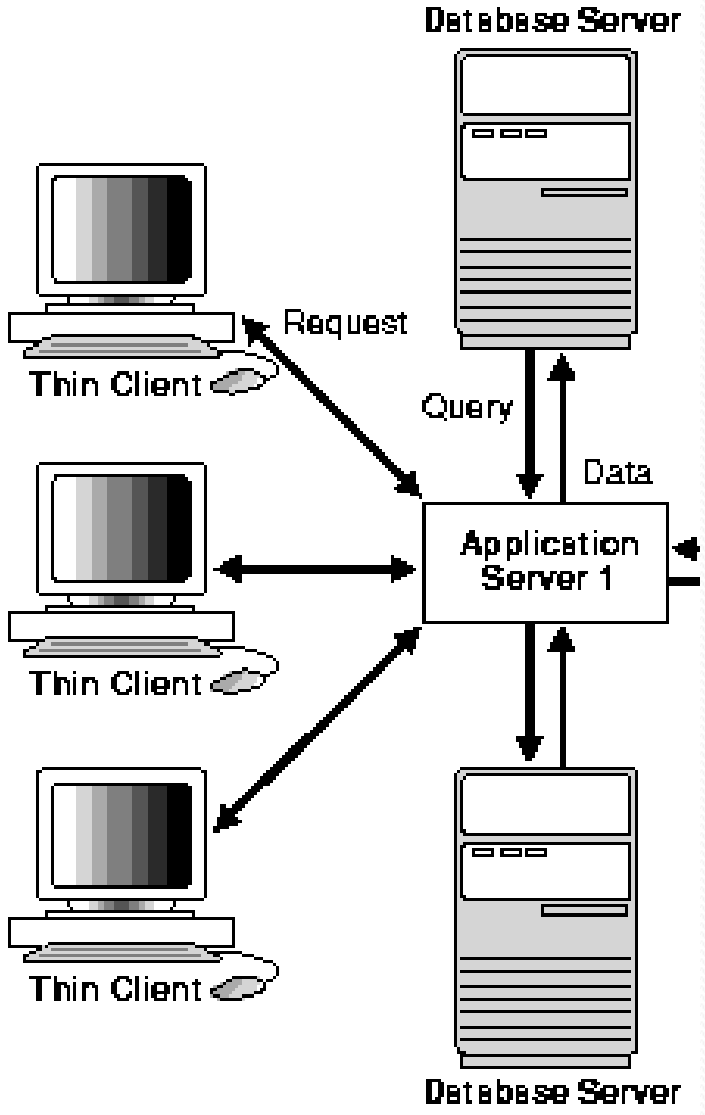
Architecture

- The data is held in a database on the server
  - Our server is called redwood and is on the ict domain
  - redwood.ict.ad.dit.ie
  - It hosts an Oracle 12c database.
- We access and manipulate the data using an application on the client.



Architecture

- The client can access the server through an application that sits on the server.
  - E.g. Over the network.
  - This requires an application on the server, that can interact with the database server.
  - The client then sends requests to the application server, which services them and returns a result.



Architectures used in this module.

- The lab and practical work should be carried out on the server provided:
  - A database server on redwood.ad.ict.dit.ie
- Using the client:
  - A client with SQL Developer
    - There is a link to this on the desktop on the lab computers
- Or
  - You can download SQL Developer and keep it on a memory stick.

Specifying your connection

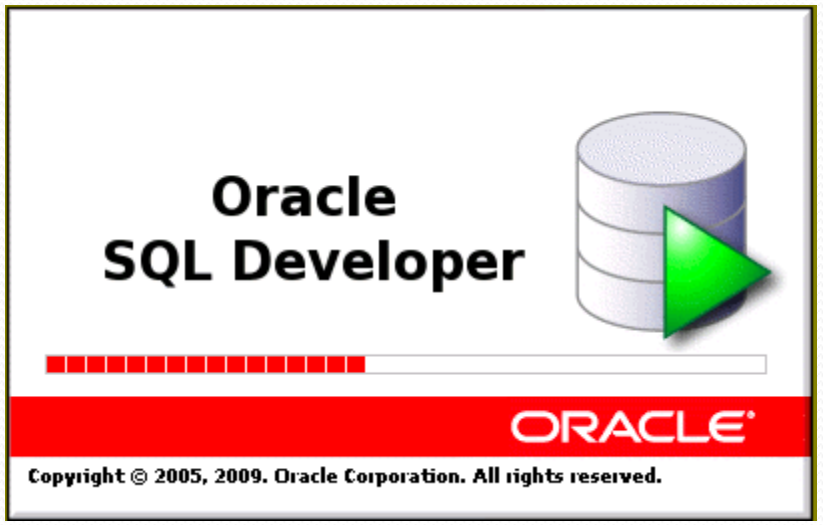
- The connection specifies:
  - A connection name (your choice)
  - A username (usually the schema name)
  - A password (authenticated by the database to allow entry)
  - A host name (i.e. The name of the server)
  - A port id (the port on which it is listening for connections)
  - A Service Name, to identify the instance to which you are connecting.

SQL Developer

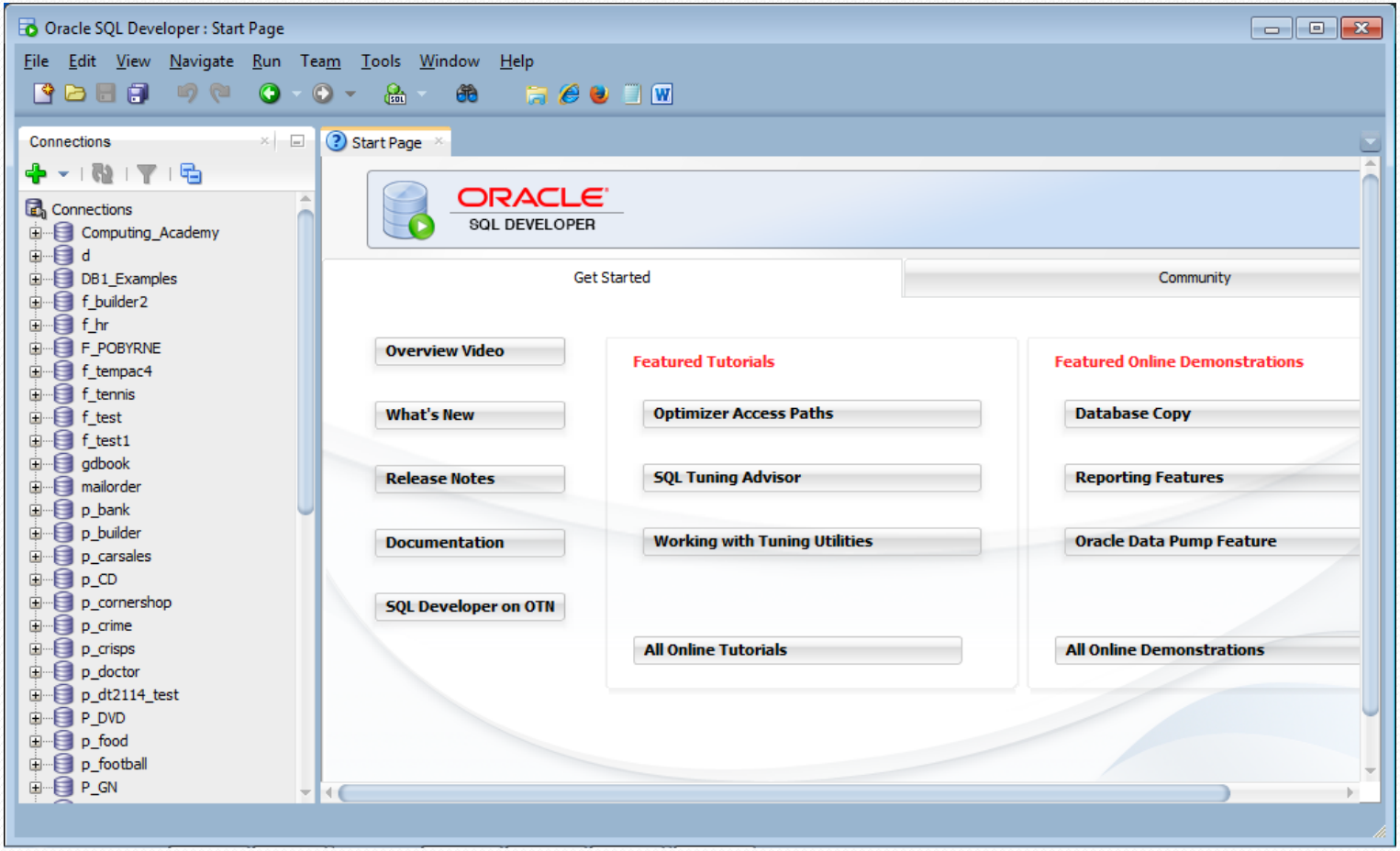
Getting Started

Opening screen

- Find the icon or menu item that starts SQL Developer.
  - It looks like the cylinder below, with the green arrow.

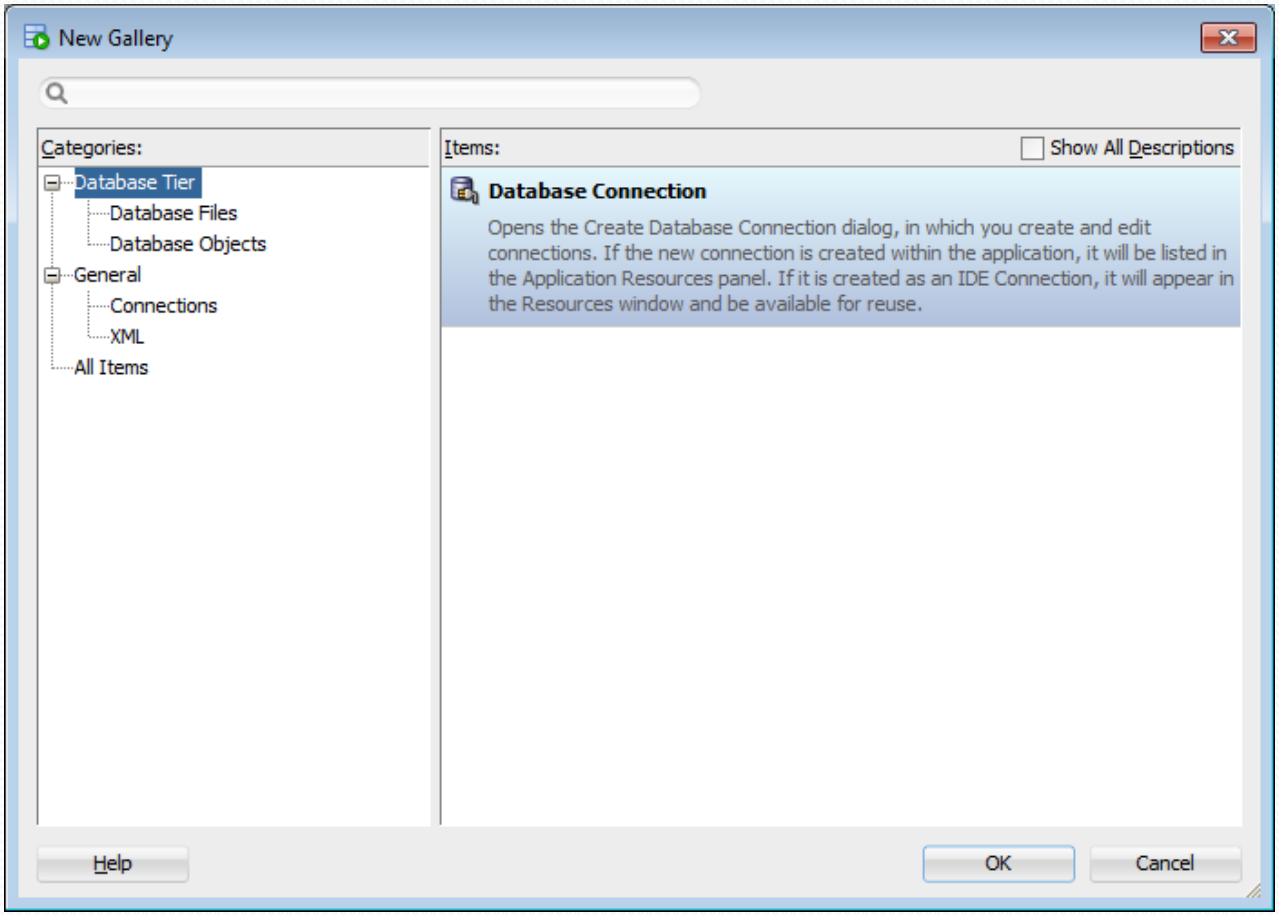


Opening Screen SQL Developer



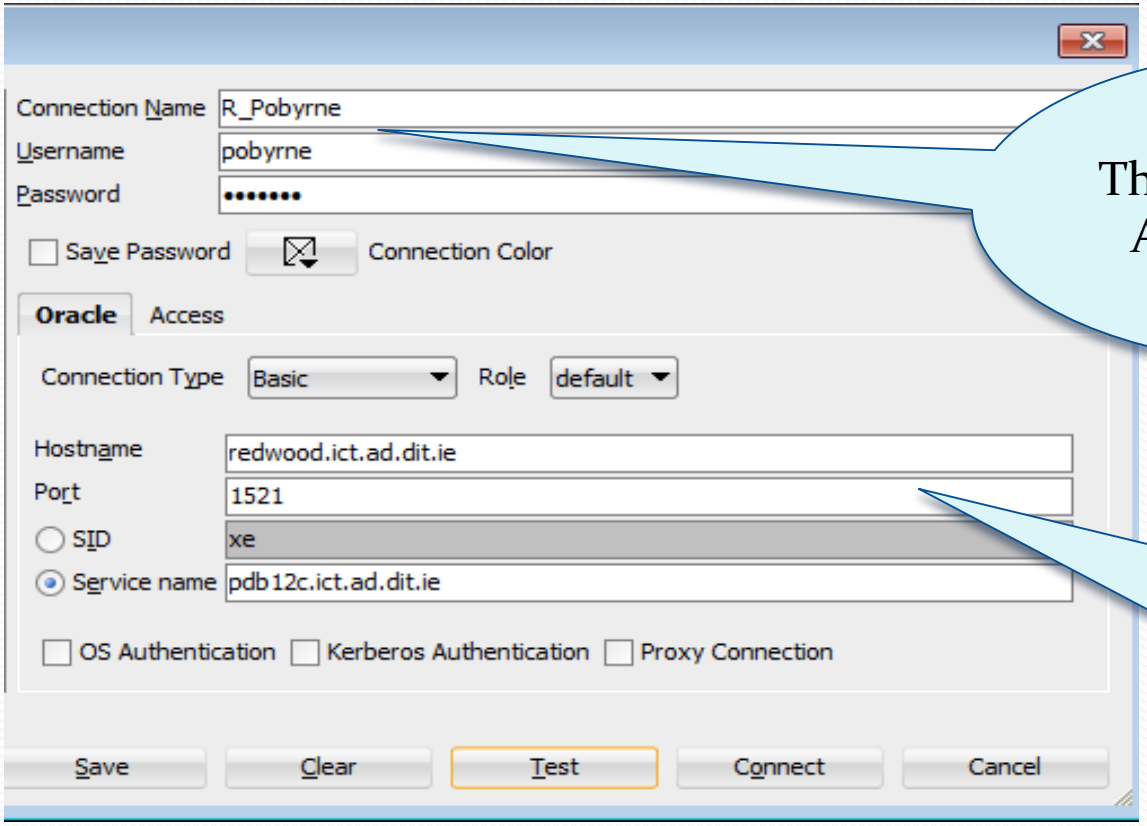
Setting up a new connection

- Click ‘File’ and ‘New’ and OK.



Starting up

- You need to fill in the details … See upcoming slides.

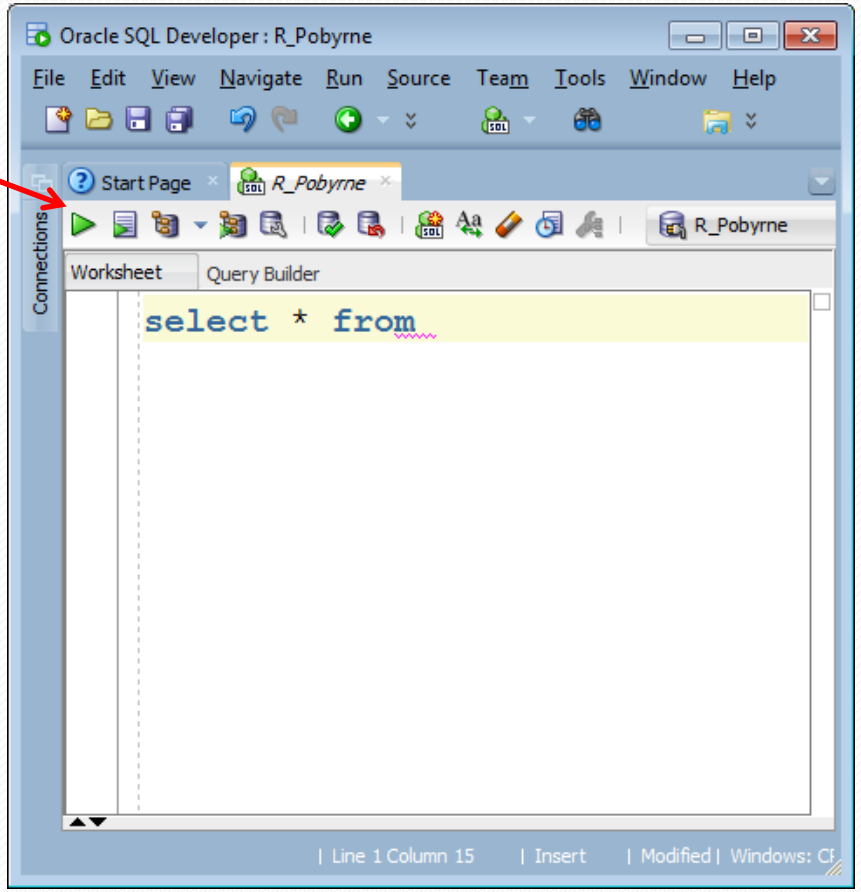


These are my details. ASK FOR YOURS!

These are the same for everyone who usess this oracle server

Using your schema

- Enter any SQL commands into the top window and click ‘run’.
  - i.e. The triangle icon.
  - Commands on next slide.
- When you connect to your schema, however, there will be no tables there, as you have not created any.



Using your schema

- However, this is a large database system, with multiple schemas.
- You have been granted SELECT privileges to some of the tables in those schemas.
- In this session, we will use a schema that has already been set up.
  - You will point your session to that schema and query it.
  - You can only do this for tables to which you have been given SELECT privileges.

BUILDER2

- There is a sample schema that contains data that would be used in a Builders' provider's shop.
- The schema is named BUILDER2.
- One of the tables in this schema is called STOCK.

Using another schema

- When you connect, your current_schema is your username.
- To change it, run the following SQL command:

```
Alter session set current_schema = builder2;
```

- This gives you access to the builder2 schema.
- This is where the Stock table is.
  - You can now select from the stock table.
- DON'T FORGET!!
  - ***If you want to work in your own schema later, you need to alter your session back to it.***

Today's exercise

- Develop solutions to the first ten queries on the Builder's query worksheet.
  - These will be marked by your lab supervisor IN CLASS.
  - You DO NOT need to submit them.