University of Glasgow Dip / MSc Information Technology Information Systems and Databases

ORACLE MINIMAL MANUAL

(For reference - in the first lab, start by using 'ISD4 Oracle Familiarisation session')

1. Oracle in the IT Lab

1.1 Introduction

The full Oracle system, which is used in the IT Lab, is a Client-Server system, i.e.:

- There is one database on one machine;
- This one machine runs a server process which manages all database access;
- Other machines (possibly including the server machine) run processes which are sessions connecting the user to a database

There is also Personal Oracle, in which all this happens on one machine. We do *not* have Personal Oracle in the IT Lab.

In the IT Lab the server should be running all the time – an error message alerts you if the server is broken. You have to logon to the database for each Oracle tool.

1.2 In the IT Lab

- Each machine in the IT Lab is an Oracle client.
- The Oracle Software on each PC enables connection to the Oracle database it, which is held on the server Crooked.
- Each user can create their own schema in the i[†]08 database, their schema is identified by their username.
- The sql command files, loader files etc. should be kept in your XP workspace on fs4.

In the DBS course you will use Aqua Data Studio

- to enter SQL statements to create your tables, views and indices, to insert some data, and subsequently to extract subsets of the data (queries);
- to bulk load data;
- to create, edit and view tables, indexes etc.
 - The Table Editor within the tool is useful for viewing and editing data.

On of the aims of the course is that you should be aware of the basic SQL commands even if you sometimes use a Manager to simplify some processes.

1.3 Documentation

Our intention is to supply you with all the information that you need for the DBS module. Additionally, each Oracle application has help. There is also a lot of documentation accessible from \\fs4\Oracle10g_docs (index.htm), accessible from the course website. There is also a link to it from the Start menu. You may wish to refer to this to clarify or extend the information that we have supplied. The sections that are of particular interest are

SQL Reference SQL Plus Users Guide

2. Aqua Data Studio

2.1 Introduction

Aqua Data Studio is an integrated tool that allows you to manage, using a GUI, from a unified view:

- Schemas
 - Create, alter, drop and show dependencies of schema objects (i.e. tables, indexes, views). You will use this.
- Security
 - Allows authorised administrators to create, alter and drop users, roles and profiles, and grant privileges and roles to database users. You will only use this to alter your password.
- Many others...
 - You will not use these, although some topics will be covered later in the course.

Your schema is identified by your username.

2.2 Opening Aqua Data

- Choose Start: All Programs: Aqua Data Studio: Aqua Data Studio
- Registering a server:
 - When you start the program for the first time, you will be asked if you wish to register a database server. Click on yes.
 - o If you do not get such a prompt, click on menu item Server: Register Server
- Now, you get a new window where you have a list of different Database Management Systems (See Screenshot on next page). Select 'Oracle 9i/10g' and enter the following data in the form on the right hand side:
 - o Name: crooked
 - o Login Name: <your Oracle username is yourWindowsUsername>
 - Password: <Your initial Oracle password is yourWindowsUsername >
 Case is not important
 - Port: 1521
 - Host: crooked
 - o SID: it08

• If the connection is successful, you will see a list of local Database Servers on the left hand side of the interface (as you are only connected to crooked, you will see only this server in the list)

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2.3 Changing your Password

We recommend you to use the Security Manager to alter your password. Therefore, click on DBA Tools: Oracle: Security Manager and connect to the server. Now, select your username out of the navigation tree and click on the 'Alter User' icon on the top of this tab. Here, you can alter your password. Remember to click on OK after entering your password twice. **Remember also to remember your new password!** *In the familiarisation session, go back to the original handout now.*

2.4 The Query Analyser

In Aqua Studio Plus, you can run client-side scripts that contain SQL commands using the Query Analyser. Click on Server: Query Analyser to open the worksheet. It looks like this:

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Within the Query Analyzer window you can create a new query, open a script, save a query, save a query as, save results, print, parse, execute current, and execute edit. The toolbar allows you to find and replace, enable auto-completion, refresh the auto schema and set the maximum results displayed. You can quickly change the database you are analyzing in the dropdown menu above the edit window.

Separate your statements with "GO" or "/" - To correctly use all of Query Analyzer's functionality you need to separate your SQL Statements. This allows Aqua Data Studio to quickly identify which statement you are working on so that it may intelligently provide Auto-Completion, Describe, SQL Template, and Execute as a script on the current statement. If you do not do this you might get the impression that Aqua Data Studio doesn't work.

2.4.1 Running a Previously Created Script

Display the script in the Query Analyser, then Execute. This method has the advantage that you can alter and save the script if necessary, and errors are clearer to spot in the output.

- 1. Clear the input if required by clicking into the pane with the right mouse button and then choosing: Clear Document.
- 2. Selecting the File: Open Script item displays the standard file selection dialog box.
- 3. After you select the file and click Open, the content of the script appears in the input pane.
- 4. Click the Execute Icon or select the Query: Execute item to run the script. You can also run the script in using the shortcut Ctrl.-E.
- 5. The output will appear in the output pane.

In the familiarisation session, go back to the original handout now.

2.4.2 Running a new SQL command

- Clear the input and output panes if required by clicking into the pane with the right mouse button and then choosing: Clear Document.
- Type the SQL command into the input pane of the Query Analyser.
- Click the Execute button.
- The result of the query is displayed in the lower (output) pane.

2.4.3 Creating a Command File

You will probably want to keep a copy of many of your SQL commands. We suggest the following approach:

- Enter the SQL command in the input pane of the Query Analyser. Don't forget the go at the end. Test it.
- Include comments.
- When it is correct, use File: Save QUery As... to save the command in your own workspace with a meaningful name and the extension .Sql. You can also use the disc icon in the worksheet to save your query.
- If you are creating a file containing several commands, such as CreateAllTables.sql, you should create it incrementally, testing each command one by one.

2.4.4 Saving and printing results of a command

The results of a query run can be written to a file using File: Save Results, which can be then opened in WordPad and printed.

Alternatively, you can copy and paste selected text from the output pane into a document of your choice.

2.4.5 SQL History

Clicking on QUery: SQL History, you can find SQL commands that you executed earlier in the same session.

2.5 Schema Settings

2.5.1 Viewing Tables in the Schema Browser

With Aqua Data Studio, you can create, edit and examine schema objects such as tables, indexes, sequences and procedures. In DBS, we will use the SQL CREATE commands to create schema objects, and we will only use the Schema Manager of Aqua Data Studio to examine these objects and possibly make minor changes.

- Navigate to your tables under your username in the Schema Browser listed under the database server in the left hand side of the interface.
- Make a right mouse click on the name of the table (e.g. Branch) and choose Table Properties
- Column names, data types and sizes are specified here.
- Click on the Constraints tab to view the Constraints. Click on each constraint to see the details in the lower pane. You may need to drag the borders to see the contents of the Check Condition column.
- Note how the schema objects also fit into the table structure.



2.5.2 Editing tables in the Schema Manager

Right click on the Tables folder on the left hand side of the interface and Choose Create Table. This brings up a table similar to that shown in 2.12, but one which can be edited. Make any alterations and click OK.

2.5.3 Viewing, entering and editing data using the Table Editor

Right click on a name of a table in the navigation tree and choose Edit Table Data (Top 1000), which allows you to display, update and delete the contents of a Table. The same changes can be done for the View of a table.

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2.6 Printing

Printouts might contain far more information than we need. You may find a subsection useful (e.g. copy and paste relevant parts into Word for printing) For the assessment of your table definitions, we would like to see your CREATE TABLE commands.

2.7 Importing data from a file

You can use the Aqua Data Studio to import data from a text file.

- Select Tools: Import Data from the Menubar. This will prompt you to choose a server in which to import data into. Navigate and select your server and click ok. This will bring up the Import dialog
- The first tab in the wizard is the General Tab. First, browse and select the file you want to import. Once the file is selected a sample of the file will be displayed in the bottom grid. Then select the encoding and platform your file is formatted in. The sample columns will be refreshed as you make changes to your options. Select whether your file is delimited or has fixed width columns. If your file has fixed width columns, type the widths of your columns separated by commas (eg: 15,25,35,60). While typing the column widths the sample data will not change, so make sure to click on the Fixed Width radio box to refresh. You may select whether the first row in the file contains the column names to help the import tool map to the table. Last, select the quote identifier for your data values. Make sure the sample data being displayed is formatted correctly before proceeding, then click next to go on to the next tab.
- With the Format Tab, you may now select the database, schema and table in which you want to import the data into. If you would like to import into a new table, you may click on the "..." button which will open a Create Table dialog with the columns defined in the sample file. You may change the names and datatypes of the columns in the table and then click ok. At this point you may import into the newly created table. If the sample file contains the column names of the values, ADS will make an attempt at matching the column names of the import file to the names of the columns of the table. You may reoder the column mapping by changing the Position column value to match the column number in the sample file, or you may remove the position value to exclude the column from being imported. Once all columns are mapped click next.
- In the Options Tab you may begin by selecting whether you want "(null)" text values to be converted to NULL values. Then you must select the format of the dates & time, date and time values will be formatted in the text file to be imported into date/time columns. If a date string is to be imported into a VARCHAR column then the format does not apply. You also have the option to import directly into the database, or generate an SQL file with INSERT statements to import into the database. A sample of the files values are provided below for configuring the date/time formats. When ready, you may click the Next button to import the data.
- Once in the Status Tab the import has begun. You may cancel the import at any time by clicking on the cancel button at the bottom of the dialog. If any errors or warnings occur, they will be displayed in the message text window.