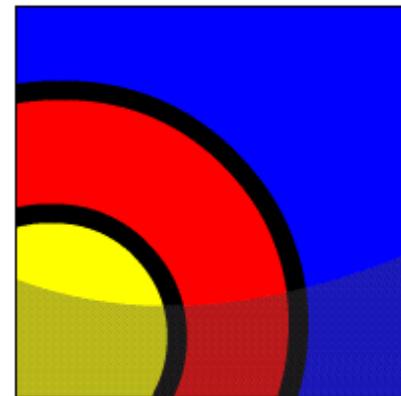


Review of the Data Dictionary

What Will I Learn?

In this lesson, you will review how to:

- Describe the purposes of the Data Dictionary
- Differentiate between the three types of Data Dictionary views
- Write SQL `SELECT` statements to retrieve information from the Data Dictionary



You will also learn how to:

- Use `DICTIONARY` as a Data Dictionary search engine

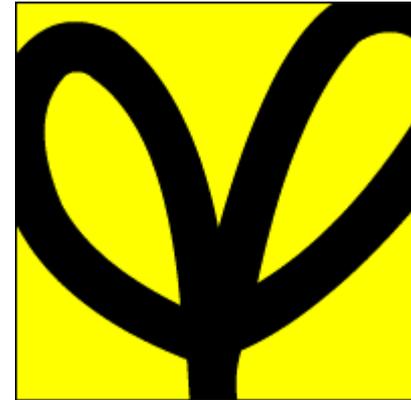


Why Learn It?

Imagine that you have created many procedures and/or functions, as well as tables and other database objects.

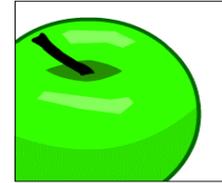
It's hard to remember all their names, isn't it?

The Data Dictionary remembers this information for you.



Tell Me / Show Me

What Is the Data Dictionary?



Every Oracle database contains a Data Dictionary. All database objects, such as tables, views, users and their privileges, procedures, functions, and so on are automatically registered in the Data Dictionary when they are created.

If an object is later altered or dropped, the Dictionary is automatically updated to reflect the change.

Think of the Dictionary as an automatically-managed master catalog of everything in the database.

Tell Me / Show Me

How Can You Read the Dictionary?

There are three classes of tables from which you can `SELECT` to view information from the Dictionary:

- The `USER_*` tables contain information about objects that you own, usually because you created them. Examples: `USER_TABLES`, `USER_INDEXES`.
- The `ALL_*` tables contain information about objects that you have privileges to use. These include the `USER_*` information as a subset, because you always have privileges to use the objects that you own. Examples: `ALL_TABLES`, `ALL_INDEXES`.
- The `DBA_*` tables contain information about everything in the database, no matter who owns them. Normally, only the Database Administrator can use the `DBA_*` tables. Examples: `DBA_TABLES`, `DBA_INDEXES`.

Tell Me / Show Me

Viewing Information in the Dictionary

Although you are not allowed to modify the dictionary yourself, you can `DESCRIBE` and `SELECT` from Dictionary tables.

For example, to see information about all the tables that you have privileges to use:

```
DESCRIBE ALL_TABLES
```

The output from this shows that many columns of data are held about each table. You decide you only want to see the name and owner, so you enter:

```
SELECT table_name, owner FROM ALL_TABLES;
```

Tell Me / Show Me

Another Example

Suppose you want to see all the objects that you own. You could `SELECT ...` from `USER_TABLES`, then from `USER_INDEXES`, then from `USER_SEQUENCES`, then from for each type of object. But it is easier to use `USER_OBJECTS`, which shows all the objects of every type:

```
SELECT object_type, object_name FROM USER_OBJECTS;
```

Remember that you can use `WHERE` conditions, `ORDER BY`, `GROUP BY`, and so on with the dictionary tables, just like regular tables. Suppose you want to see how many objects of each type you own:

```
SELECT object_type, COUNT(*) FROM USER_OBJECTS  
GROUP BY object_type;
```



Tell Me / Show Me

Using the Super-View `DICTIONARY`

There are several hundred Dictionary tables and no one can remember the names of all of them. You don't have to!

There is a super-view called `DICTIONARY` (or `DICT` for short), which lists all the Dictionary tables.

You can use `DICT` like a web search engine (such as Google) to show the names and descriptions (comments) of a relevant subset of Dictionary tables.

The next slide shows how to do this.

Tell Me / Show Me

Using the Super-View DICTIONARY

First try:

```
SELECT COUNT(*) FROM DICT WHERE table_name LIKE 'USER%';
```

You see that there are more than a hundred USER_* tables.

Can you remember which one of them shows you information about which table columns are indexed? Most people can't!

You can reasonably assume that all Dictionary tables that describe indexes have names containing the substring 'IND'. So:

```
SELECT * FROM DICT WHERE table_name LIKE 'USER%IND%';
```

Now you can see that the table you want is USER_IND_COLUMNS.

Tell Me / Show Me

Viewing the Dictionary using Application Express

The Object Browser in Application Express provides an easier way to see much of the Dictionary information. To use it, go to SQL Workshop -> Object Browser -> Browse and click the desired object type.

Much easier, isn't it? So why do you still need to know about the `USER_*` and `ALL_*` tables? The Object Browser does not show everything:

- It shows only the objects that you own, not other objects that you are allowed to use
- It shows only a subset of information about each object
- It does not show all the possible object types.

Tell Me / Show Me

Terminology

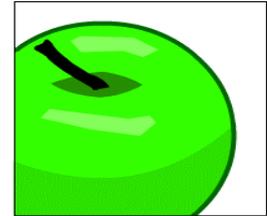
Key terms used in this lesson include:

Data Dictionary

USER_* tables

ALL_* tables

DBA_* tables



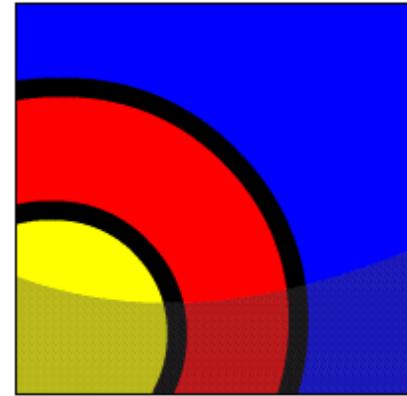
Summary

In this lesson, you reviewed how to:

- Describe the purposes of the Data Dictionary
- Differentiate between the three types of Data Dictionary views
- Write SQL `SELECT` statements to retrieve information from the Data Dictionary

You also learned how to:

- Use `DICTIONARY` as a Data Dictionary search engine



Try It / Solve It

The exercises in this lesson cover the following topics:

- Describing the purposes of the Data Dictionary
- Differentiating between the three types of Data Dictionary views
- Writing SQL `SELECT` statements to retrieve information from the Data Dictionary
- Using `DICTIONARY` as a Data Dictionary search engine

