ORACLE 11G DATABASE ADMINISTRATION PART 1 – READ ONLY TABLES

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INTRODUCTION

Prior to Oracle 11g, we are allowed to make either the Database or the Tablespace as Read-only with single command. Oracle 11g allow drilling down this feature more to table level. We can now make a table Read-only with a single command. You cannot perform DML operation like Insert/Delete/Update on Read only tables. You can continue to perform DDL operation on the Table like Create Index/Partition etc including Drop Table command. You can revert back the Table to Read write mode as and when required.

There are lots of scenario where this feature will be useful like if you have configuration table that maintains the list of server involved in the application along with some constant values and you don't make frequent changes to it. Whenever you need to make any change, you can reverse the Status from Read-only to Read-write and then make it back to Read-only mode.

ORACLE 10G READ-ONLY TABLES

You can make the Table read-only in prior releases but it always have some pros and cons associated with it which will make it very difficult to manage and maintain it. Below are some very good references to make the table Read only

http://www.dizwell.com/prod/node/60

http://oraqa.com/2006/01/09/how-to-set-a-table-in-read-only-mode

ORACLE 11G READ-ONLY TABLES

When you make the Table Read-only, it will protect the table from all DML operation including from the owner of the table. This is possible with the new SQL command

```
ALTER TABLE <table Name> READ ONLY;
```

You can change the Table status back to Write Mode using the following SQL command

```
ALTER TABLE <table Name> READ WRITE;
```

Let's used the Sample Schema Scott for doing a small test

VERIFYING THE COMMAND TO MAKE TABLE READ ONLY AND THEN REVERSE BACK TO READ WRITE.

```
SQL> select read_only from user_tables where table_name = 'EMP';
REA
---
NO    →It is currently not in Read Mode
SQL> alter table emp read only;
Table altered.
SQL> select read_only from user_tables where table_name = 'EMP';
REA
---
YES    →It is Now in Read Mode
```

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```
SQL> alter table emp read write;
Table altered.
SQL> select read_only from user_tables where table_name = 'EMP';
REA
---
NO     →It is Back to in No Read Mode means it is in Write Mode
```

VERIFY IF YOU CAN PERFORM DML/DDL ON THE READ-ONLY TABLE

```
Check the Existing Status of the Table [ Read only or Read Write]
SQL> select read_only from user_tables where table_name = 'EMP';
REA
---
NO

Make the Table Read-Only
SQL> alter table emp read only;
Table altered.

Try it again to make it Read-only
SQL> alter table emp read only;
alter table emp read only
*
ERROR at line 1:
ORA-14139: table SCOTT.EMP is already in read-only mode

Perform Update on Read-only table
SQL> update emp set sal=sal*100;
update emp set sal=sal*100
        *
ERROR at line 1:
ORA-12081: update operation not allowed on table "SCOTT"."EMP"

Perform Insert on Read-only table
SQL> insert into emp(empno,sal) values (111111,111111);
insert into emp(empno,sal) values (111111,111111)
            *
ERROR at line 1:
ORA-12081: update operation not allowed on table "SCOTT"."EMP"

Perform Delete on Read-only table
SQL> delete from emp where sal > 1;
delete from emp where sal > 1
            *
ERROR at line 1:
ORA-12081: update operation not allowed on table "SCOTT"."EMP"
SQL> truncate table emp;
```

```
                 *
ERROR at line 1:
ORA-12081: update operation not allowed on table "SCOTT"."EMP"


Check if Select is still working
SQL> select * from emp where rownum < 2;
 EMPNO ENAME    JOB     MGR   HIREDATE  SAL    COMM    DEPTNO
------ -------- ------- ---- --------- ------ ------- ---------
  7369 SMITH    CLERK   7902 17-DEC-80 800             20


Check if DDL like Create index or Drop table are working
SQL> create index emp_test_idx on emp(sal);
Index created.

SQL> drop table emp;
Table dropped.
```

The following operations are not permitted on a read-only table:

- All DML operations on the table or any of its partitions
- Online redefinition
- TRUNCATE TABLE
- FLASHBACK TABLE
- SELECT FOR UPDATE
- ALTER TABLE SET COLUMN UNUSED
- ALTER TABLE ADD/MODIFY/RENAME/DROP COLUMN
- ALTER TABLE DROP/TRUNCATE/EXCHANGE (SUB)PARTITION

The following operations are permitted on a read-only table:

- SELECT
- CREATE/ALTER/DROP INDEX
- ALTER TABLE ADD/MODIFY/DROP/ENABLE/DISABLE CONSTRAINT
- ALTER TABLE for physical property changes
- ALTER TABLE DROP UNUSED COLUMNS
- ALTER TABLE ADD/COALESCE/MERGE/MODIFY/MOVE/RENAME/SPLIT (SUB)PARTITION
- ALTER TABLE MOVE
- ALTER TABLE ENABLE ROW MOVEMENT and ALTER TABLE SHRINK
- RENAME TABLE and ALTER TABLE RENAME TO
- DROP TABLE
- ALTER TABLE ADD/DROP SUPPLEMENTAL LOG