

# Experiment No. 04

## Implementation of Tablespace in Oracle

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### 1. Creating and Managing Tablespaces

```
SQL Plus
SQL*Plus: Release 21.0.0.0.0 - Production on Wed Oct 9 10:33:32 2024
Version 21.3.0.0.0

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Enter user-name: system
Enter password:
Last Successful login time: Wed Oct 09 2024 09:52:50 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> create tablespace emp_data1 datafile 'C:\dfiles\emp_data2.dbf' size 20m blocksize 8k;

Tablespace created.

SQL> select tablespace_name, contents from dba_tablespaces;

TABLESPACE_NAME      CONTENTS
-----
SYSTEM                PERMANENT
SYSAUX                PERMANENT
UNDOTBS1              UNDO
TEMP                  TEMPORARY
USERS                 PERMANENT
TBS03                 PERMANENT
TBS04                 PERMANENT
EMP_DATA              PERMANENT
EMP_DATA1             PERMANENT

9 rows selected.

SQL> alter session set "_ORACLE_SCRIPT"=true;

Session altered.

SQL> create user hr_user1 identified by hr_user1 default tablespace emp_data1 quota 20m on emp_data1;

User created.
```

### 2. Create user and assign Tablespace Quotas

```

SQL> grant create session, create table to hr_user1;

Grant succeeded.

SQL> show user;
USER is "SYSTEM"
SQL> desc dba_ts_quotas;

```

Name	Null?	Type
TABLESPACE_NAME	NOT NULL	VARCHAR2(30)
USERNAME	NOT NULL	VARCHAR2(128)
BYTES		NUMBER
MAX_BYTES		NUMBER
BLOCKS		NUMBER
MAX_BLOCKS		NUMBER
DROPPED		VARCHAR2(3)

```

SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes from dba_ts_quotas where username='HR_USER1';

```

TABLESPACE_NAME	USERNAME	MAX_BYTES
EMP_DATA1	HR_USER1	20

```

SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes, bytes/1024/1024 as used_data from dba_ts_quotas where username='HR_USER1';

```

TABLESPACE_NAME	USERNAME	MAX_BYTES	USED_DATA
EMP_DATA1	HR_USER1	20	0

### 3. Create table in tablespace

```

SQL> conn hr_user1/hr_user1
Connected.
SQL> create table employee3(emp_id int, emp_name varchar(10), emp_address varchar(10));

Table created.

SQL> insert into employee3 values(1, 'Arnav', 'Kolhapur');

1 row created.

SQL> select * from employee3;

```

EMP_ID	EMP_NAME	EMP_ADDRES
1	Arnav	Kolhapur

```

SQL> conn sys/computer as sysdba;
Connected.
SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes, bytes/1024/1024 as used_data from dba_ts_quotas where username='HR_USER1';

```

TABLESPACE_NAME	USERNAME	MAX_BYTES	USED_DATA
EMP_DATA1	HR_USER1	20	.0625

```

SQL> conn hr_user1/hr_user1
Connected.

```

## 4. Insert values in table

```
SQL> conn hr_user1/hr_user1
Connected.
SQL> insert into employee2 select * from employee3;
insert into employee2 select * from employee3
*
ERROR at line 1:
ORA-00942: table or view does not exist

SQL> insert into employee3 select * from employee3;
1 row created.

SQL> insert into employee3 select * from employee3;
2 rows created.

SQL> insert into employee3 select * from employee3;
4 rows created.

SQL> insert into employee3 select * from employee3;
8 rows created.

SQL> insert into employee3 select * from employee3;
16 rows created.

SQL> insert into employee3 select * from employee3;
32 rows created.

SQL> insert into employee3 select * from employee3;
64 rows created.

SQL> insert into employee3 select * from employee3;
128 rows created.
```

## 5. Check Max\_Bytes and Used\_Data

```
SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes, bytes/1024/1024 as used_data from dba_ts_quotas where username='HR_USER1';

TABLESPACE_NAME
-----
USERNAME
-----
MAX_BYTES  USED_DATA
-----
EMP_DATA1
HR_USER1
      20      .0625

SQL> conn hr_user1/hr_user1
Connected.
SQL> insert into employee3 select * from employee3;

512 rows created.

SQL> insert into employee3 select * from employee3;

1024 rows created.

SQL> insert into employee3 select * from employee3;

2048 rows created.

SQL> insert into employee3 select * from employee3;

4096 rows created.

SQL> insert into employee3 select * from employee3;

8192 rows created.

SQL> insert into employee3 select * from employee3;

16384 rows created.

SQL> insert into employee3 select * from employee3;
```

## 6. Verify the quota is full and values are inserting or not

```
65536 rows created.

SQL> insert into employee3 select * from employee3;

131072 rows created.

SQL> insert into employee3 select * from employee3;

262144 rows created.

SQL> insert into employee3 select * from employee3;
insert into employee3 select * from employee3
*
ERROR at line 1:
ORA-01653: unable to extend table HR_USER1.EMPLOYEE3 by 128 in tablespace
EMP_DATA1

SQL> conn sys/sys as sysdba
Connected.
SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes, bytes/1024/1024 as used_data from dba_ts_quotas where username='HR_USER1';

TABLESPACE_NAME
-----
USERNAME
-----
MAX_BYTES  USED_DATA
-----
EMP_DATA1
HR_USER1
      20      19

SQL> conn hr_user1/hr_user1
Connected.
SQL> insert into employee3 select * from employee3;
insert into employee3 select * from employee3
*
ERROR at line 1:
ORA-01653: unable to extend table HR_USER1.EMPLOYEE3 by 128 in tablespace
EMP_DATA1
```

## 7. Updates to Tablespace

```
SQL> conn sys/sys as sysdba
Connected.
SQL> alter tablespace emp_data1 online;

Tablespace altered.

SQL> conn hr_user1/hr_user1
Connected.
SQL> select * from employee3 fetch first 3 rows only;

  EMP_ID EMP_NAME  EMP_ADDRES
-----
      1 Arnav     Kolhapur
      1 Arnav     Kolhapur
      1 Arnav     Kolhapur

SQL> insert into employee3 values(1,'abc','Kolhapur');

1 row created.

SQL> conn sys/sys as sysdba
Connected.
SQL> alter tablespace emp_data1 read only
2
SQL> conn hr_user1/hr_user1
Connected.
SQL> select * from employee3 fetch first 3 rows only;

  EMP_ID EMP_NAME  EMP_ADDRES
-----
      1 Arnav     Kolhapur
      1 Arnav     Kolhapur
      1 Arnav     Kolhapur
```