

\*\*\* Create a table based on dba\_tables

```
SQL> CREATE TABLE test_nulls AS SELECT * FROM dba_tables;
```

Table created.

\*\*\* Note the PCT\_FREE column contains 50 null values

```
SQL> SELECT COUNT(*) FROM test_nulls WHERE PCT_FREE IS NULL;
```

```
  COUNT(*)
-----
         50
```

\*\*\* create an index on the PCT\_FREE column

```
SQL> CREATE INDEX test_nulls_i ON test_nulls(pct_free);
```

Index created.

```
SQL> exec DBMS_STATS.GATHER_TABLE_STATS(ownname=>'BOWIE', tabname=>'TEST_NULLS', estimate_percent=>NULL,
cascade=>true, method_opt=>'FOR ALL COLUMNS SIZE 1');
```

PL/SQL procedure successfully completed.

\*\*\* Perform a search for all NULL values

```
SQL> SELECT * FROM test_nulls WHERE pct_free IS NULL;
50 rows selected.
```

Execution Plan

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		50	10250	12 (0)	00:00:01
* 1	TABLE ACCESS FULL	TEST_NULLS	50	10250	12 (0)	00:00:01

\*\*\* Note the index is ignored

```
SQL> SELECT /*+ INDEX(tn, test_nulls_i) */ * FROM test_nulls tn WHERE pct_free IS NULL;
50 rows selected.
```

Execution Plan

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		50	10250	12 (0)	00:00:01
* 1	TABLE ACCESS FULL	TEST_NULLS	50	10250	12 (0)	00:00:01

\*\*\* Hints do no good. A block dump on the index shows that the NULL values are not indexed

\*\*\* However, create a concatenated index with the OWNER column, which has a NOT NULL constraint ...

```
SQL> CREATE INDEX test_nulls_i2 ON test_nulls(pct_free, owner) COMPUTE STATISTICS;
Index created.
```

```
SQL> SELECT * FROM test_nulls WHERE pct_free IS NULL;
50 rows selected.
```

Execution Plan

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		50	10250	6 (0)	00:00:01
1	TABLE ACCESS BY INDEX ROWID	TEST_NULLS	50	10250	6 (0)	00:00:01
* 2	INDEX RANGE SCAN	TEST_NULLS_I2	50		2 (0)	00:00:01

\*\*\* And we see the index is now used

\*\*\* However, create another index with just a space ' ' tagged on the end

```
SQL> CREATE INDEX test_nulls_i3 ON test_nulls(pct_free, ' ') COMPUTE STATISTICS;
Index created.
```

```
SQL> SELECT * FROM test_nulls WHERE pct_free IS NULL;
50 rows selected.
```

Execution Plan

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		50	10250	5 (0)	00:00:01
1	TABLE ACCESS BY INDEX ROWID	TEST_NULLS	50	10250	5 (0)	00:00:01
* 2	INDEX RANGE SCAN	TEST_NULLS_I3	50		2 (0)	00:00:01

\*\*\* And again, the index is used to retrieve all rows where the PCT\_FREE column is null ...