

*** Create table

```
SQL> CREATE TABLE height_test (id NUMBER, text VARCHAR2(10));  
Table created.
```

*** Create 8K block size index

```
SQL> CREATE INDEX height_test_8k_i ON height_test(id);  
Index created.
```

*** Insert an outlier value to generate 50-50 index splits

```
SQL> INSERT INTO height_test VALUES (999999999999, 'BOWIE');  
1 row created.
```

```
SQL> COMMIT;
```

Commit complete.

*** Insert to a total of 100 rows

```
SQL> INSERT INTO height_test SELECT rownum, 'BOWIE' FROM dual  
connect by level <=99;  
99 rows created.
```

```
SQL> COMMIT;
```

Commit complete.

```
SQL> ANALYZE INDEX height_test_8k_i VALIDATE STRUCTURE;
```

Index analyzed.

*** Note index has a height of 1

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
1	0	1	100

*** Insert to a total of 1000 rows

```
SQL> INSERT INTO height_test SELECT rownum+100, 'BOWIE' FROM dual
connect by level <=900;
```

900 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> ANALYZE INDEX height_test_8k_i VALIDATE STRUCTURE;
```

Index analyzed.

*** Index now has a height of 2 with just 3 1/2 empty leaf blocks.

*** Suspect this index would reduce in height if the block size were to double ...

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
2	1	3	1000

*** Insert to a total of 10000 rows

```
SQL> INSERT INTO height_test SELECT rownum+1000, 'BOWIE' FROM dual
connect by level <=9000;
```

9000 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> ANALYZE INDEX height_test_8k_i VALIDATE STRUCTURE;
```

Index analyzed.

*** Height still 2 but leaf blocks at 36

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
-----	-----	-----	-----
2	1	36	10000

*** Insert to a total of 100000 rows

```
SQL> INSERT INTO height_test SELECT rownum+10000, 'BOWIE' FROM dual
connect by level <=90000;
```

90000 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> ANALYZE INDEX height_test_8k_i VALIDATE STRUCTURE;
```

Index analyzed.

*** Height still 2 with 390 leaf blocks

```
SQL> SELECT height, br_bkls, lf_bkls, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
-----	-----	-----	-----
2	1	390	100000

*** Insert to 1000000 rows

```
SQL> INSERT INTO height_test SELECT rownum+100000, 'BOWIE' FROM dual
connect by level <=900000;
```

900000 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> ANALYZE INDEX height_test_8k_i VALIDATE STRUCTURE;
```

Index analyzed.

*** Height now 3 but 12 branch blocks. Unlikely to reduce in height by simply doubling index block

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
3	12	3926	1000000

*** Insert to 10000000 rows

```
SQL> INSERT INTO height_test SELECT rownum+1000000, 'BOWIE' FROM dual connect by level <=9000000;
```

9000000 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> ANALYZE INDEX height_test_8k_i VALIDATE STRUCTURE;
```

Index analyzed.

*** still at a height of 3

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
3	125	41426	10000000

*** Let's now drop the table and start again

```
SQL> drop table height_test;
```

Table dropped.

```
SQL> CREATE TABLE height_test (id NUMBER, text VARCHAR2(10));
```

Table created.

*** But this time create a 16K block index

```
SQL> CREATE INDEX height_test_16k_i ON height_test(id) tablespace  
ts_16k;
```

Index created.

```
SQL> INSERT INTO height_test VALUES (999999999999, 'BOWIE');
```

1 row created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> INSERT INTO height_test SELECT rownum, 'BOWIE' FROM dual  
connect by level <=99;
```

99 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> ANALYZE INDEX height_test_16k_i VALIDATE STRUCTURE;
```

Index analyzed.

*** As expected, no change, it's just a single block index at this stage

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BLKs	LF_BLKs	LF_ROWS
1	0	1	100

```
SQL> INSERT INTO height_test SELECT rownum+100, 'BOWIE' FROM dual  
connect by level <=900;
```

900 rows created.

```
SQL> COMMIT;
```

Commit complete.

*** OK, we have actually reduced the height of the index at this point (it previously has a height of 2)

*** However, the index was pretty smaller and we rebuilt it just within a necessary size boundary

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BLKs	LF_BLKs	LF_ROWS
1	0	1	1000

```
SQL> INSERT INTO height_test SELECT rownum+1000, 'BOWIE' FROM dual  
connect by level <=9000;
```

9000 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> ANALYZE INDEX height_test_16k_i VALIDATE STRUCTURE;
```

Index analyzed.

*** Note: NO CHANGE IN INDEX HEIGHT !!

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
2	1	18	10000

```
SQL> INSERT INTO height_test SELECT rownum+10000, 'BOWIE' FROM dual  
connect by level <=90000;
```

90000 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> ANALYZE INDEX height_test_16k_i VALIDATE STRUCTURE;
```

Index analyzed.

*** Note: NO CHANGE IN INDEX HEIGHT !!

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
2	1	194	100000

```
SQL> INSERT INTO height_test SELECT rownum+100000, 'BOWIE' FROM dual  
connect by level <=900000;
```

900000 rows created.

```
SQL> COMMIT;
```

```
Commit complete.
```

```
SQL> ANALYZE INDEX height_test_16k_i VALIDATE STRUCTURE;
```

```
Index analyzed.
```

```
*** Note: NO CHANGE IN INDEX HEIGHT !!
```

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
3	3	1956	1000000

```
SQL> INSERT INTO height_test SELECT rownum+1000000, 'BOWIE' FROM dual connect by level <=9000000;
```

```
9000000 rows created.
```

```
SQL> COMMIT;
```

```
Commit complete.
```

```
SQL> ANALYZE INDEX height_test_16k_i VALIDATE STRUCTURE;
```

```
Index analyzed.
```

```
SQL> SELECT height, br_blks, lf_blks, lf_rows FROM index_stats;
```

HEIGHT	BR_BKLS	LF_BKLS	LF_ROWS
3	32	20706	10000000

```
*** Note: NO CHANGE IN INDEX HEIGHT !!
```