

*** Create a simple demo table with just the one column with just the one distinct value

```
SQL> CREATE TABLE compress1 (ID VARCHAR2(1));
```

Table created.

```
SQL> INSERT INTO compress1 SELECT 'A' FROM dual CONNECT BY LEVEL <= 100000;
```

100000 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> CREATE INDEX compress1_i ON compress1(id) PCTFREE 0;
```

Index created.

```
SQL> SELECT index_name, leaf_blocks FROM user_indexes WHERE index_name = 'COMPRESS1_I';
```

INDEX_NAME	LEAF_BLOCKS
COMPRESS1_I	163

Leaf block dump

=====

header address 179249756=0xaaf225c

kdxcolev 0

KDXCOLEV Flags = - - -

kdxcolok 0

kdxcoopc 0x80: opcode=0: iot flags=--- is converted=Y

kdxconco 2

kdxcosdc 0

kdxconro 615

kdxcofbo 1266=0x4f2

kdxcofeo 1271=0x4f7

kdxcoavs 5

kdxlespl 0

kdxlende 0

kdxlenxt 75606029=0x481a80d

kdxleprv 75606027=0x481a80b

kdxledsz 0

kdxlebksz 8036

row#0[8025] flag: -----, lock: 0, len=11

col 0; len 1; (1): 41

col 1; len 6; (6): 04 81 12 8a 02 67

row#1[8014] flag: -----, lock: 0, len=11

col 0; len 1; (1): 41

col 1; len 6; (6): 04 81 12 8a 02 68

row#2[8003] flag: -----, lock: 0, len=11

col 0; len 1; (1): 41

col 1; len 6; (6): 04 81 12 8a 02 69

row#3[7992] flag: -----, lock: 0, len=11

col 0; len 1; (1): 41

col 1; len 6; (6): 04 81 12 8a 02 6a

...

```
row#612[1293] flag: -----, lock: 0, len=11
col 0; len 1; (1): 41
col 1; len 6; (6): 04 81 12 8b 02 37
row#613[1282] flag: -----, lock: 0, len=11
col 0; len 1; (1): 41
col 1; len 6; (6): 04 81 12 8b 02 38
row#614[1271] flag: -----, lock: 0, len=11
col 0; len 1; (1): 41
col 1; len 6; (6): 04 81 12 8b 02 39
----- end of leaf block dump -----
End dump data blocks tsn: 21 file#: 18 minblk 108556 maxblk 108556
```

*** Length of row entry = 11 bytes (1 ID column, 6 rowid, 2 length bytes, 2 flag, locks)

*** overheads with first column 2 bytes (1 byte column value, 1 byte column length)

```
SQL> DROP INDEX compress1_i;
```

Index dropped.

```
SQL> CREATE INDEX compress1_i ON compress1(id) PCTFREE 0 COMPRESS;
```

Index created.

```
SQL> SELECT index_name, leaf_blocks FROM user_indexes WHERE index_name =
'COMPRESS1_I';
```

INDEX_NAME	LEAF_BLOCKS
COMPRESS1_I	138

*** Note leaf block reduced from 163 to 138 ...

Leaf block dump

=====

```
header address 125968988=0x782225c
kdxcolev 0
KDXCOLEV Flags = - - -
kdxcolok 0
kdxcoopc 0xa0: opcode=0: iot flags=-C- is converted=Y
kdxconco 2
kdxcosdc 0
kdxconro 726
kdxcofbo 1496=0x5d8
kdxcofeo 1498=0x5da
kdxcoavs 2
kdxlespl 0
kdxlende 0
kdxlenxt 75606029=0x481a80d
kdxleprv 75606027=0x481a80b
kdxledsz 0
kdxlebksz 8036
kdxlepno 1
```

```
kdxlepnc0 1
prefix row#0[8032] flag: -P----, lock: 0, len=4
col 0; len 1; (1): 41
prc 726
row#0[8023] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 12 8b 00 42
psno 0
row#1[8014] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 12 8b 00 43
psno 0
row#2[8005] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 12 8b 00 44
psno 0
row#3[7996] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 12 8b 00 45
psno 0
```

...

```
row#723[1516] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 12 8c 00 81
psno 0
row#724[1507] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 12 8c 00 82
psno 0
row#725[1498] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 12 8c 00 83
psno 0
```

----- end of leaf block dump -----

End dump data blocks tsn: 21 file#: 18 minblk 108556 maxblk 108556

*** length of prefix = 4 bytes (double that of previous) therefore for the cost of 4 bytes, we save 2 bytes for each and every index row entry

*** length of index row entry = 9 bytes (6 rowid, 1 length rowid, 2 flags lock info) Prefix pointer is positional and so takes no space ...

*** This time, create the index with unique values (although the index itself is non-unique)

```
SQL> CREATE TABLE compress_unique (id number);
```

Table created.

```
SQL> INSERT INTO compress_unique SELECT rownum FROM dual CONNECT BY LEVEL
<= 100000;
```

100000 rows created.

```
SQL> COMMIT;
```

Commit complete.

```
SQL> CREATE INDEX compress_unique_i ON compress_unique(id) PCTFREE 0
COMPRESS;
```

Index created.

Leaf block dump

=====

header address 184230492=0xafb225c

kdxcolev 0

KDXCOLEV Flags = - - -

kdxcolok 0

kdxcoopc 0xa0: opcode=0: iot flags=-C- is converted=Y

kdxconco 2

kdxcosdc 0

kdxconro 380

kdxcofbo 2320=0x910

kdxcofeo 2340=0x924

kdxcoavs 20

kdxlespl 0

kdxlende 0

kdxlenxt 75626126=0x481f68e

kdxleprv 75626124=0x481f68c

kdxledsz 0

kdxlebksz 8036

kdxlepno 380

kdxlepno 1

prefix row#0[8030] flag: -P----, lock: 0, len=6 **** Note starts at position 8030 through to 8016 (15 bytes - 6 for the prefix, 9 bytes for the index entry)

col 0; len 3; (3): c2 08 43

prc 1

prefix row#1[8015] flag: -P----, lock: 0, len=6

col 0; len 3; (3): c2 08 44

prc 1

prefix row#2[8000] flag: -P----, lock: 0, len=6

col 0; len 3; (3): c2 08 45

prc 1

prefix row#3[7985] flag: -P----, lock: 0, len=6

col 0; len 3; (3): c2 08 46

prc 1

...

prefix row#377[2379] flag: -P----, lock: 0, len=6

col 0; len 3; (3): c2 0c 2c

prc 1

prefix row#378[2364] flag: -P----, lock: 0, len=6

col 0; len 3; (3): c2 0c 2d

prc 1

prefix row#379[2349] flag: -P----, lock: 0, len=6

col 0; len 3; (3): c2 0c 2e

prc 1

row#0[8021] flag: -----, lock: 0, len=9

col 0; len 6; (6): 04 81 aa 8b 00 69

psno 0

row#1[8006] flag: -----, lock: 0, len=9

col 0; len 6; (6): 04 81 aa 8b 00 6a

psno 1

row#2[7991] flag: -----, lock: 0, len=9

col 0; len 6; (6): 04 81 aa 8b 00 6b

psno 2

row#3[7976] flag: -----, lock: 0, len=9

col 0; len 6; (6): 04 81 aa 8b 00 6c
psno 3

...

row#377[2370] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 aa 8b 01 e2
psno 377

row#378[2355] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 aa 8b 01 e3
psno 378

row#379[2340] flag: -----, lock: 0, len=9
col 0; len 6; (6): 04 81 aa 8b 01 e4
psno 379

----- end of leaf block dump -----

End dump data blocks tsn: 21 file#: 18 minblk 128653 maxblk 128653

*** Each prefix entry is referenced by just the one index row entry ...

*** Here, the prefix entries are 6 bytes (3 for the column value, 1 for the length, 2 overheads)

*** Index entries are 9 bytes (6 rowid, 1 rowid length, 2 overhead)