

GIN Indexes

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YFTT
YUGABYTEDB
FRIDAY
TECH TALKS

 **yugabyteDB**

Overview

GIN indexes index elements inside containers

type	sample	GIN elements	use case
tsvector	<code>to_tsvector('The quick brown fox')</code>	brown, fox, quick	text search
array	<code>'{1,5,1}'</code>	1, 5	element search
jsonb	<code>'{"k":"v"}'</code>	k, v	key/value/path search

Example

```
CREATE TABLE t1 (k int PRIMARY KEY, t text, a char[]);  
CREATE INDEX i1 ON t1 (t);  
CREATE INDEX i2 ON t1 USING gin (a);  
INSERT INTO t1 VALUES (1, 'hello', '{f,o,o}');
```

t1:

1	hello	{f,o,o}
---	-------	---------

i1:

hello	1
-------	---

i2:

f	1
o	1

Example

```
CREATE TABLE t1 (k int PRIMARY KEY, t text, a char[]);  
CREATE INDEX i1 ON t1 (t);  
CREATE INDEX i2 ON t1 USING gin (a);  
INSERT INTO t1 VALUES (1, 'hello', '{f,o,o}');  
INSERT INTO t1 VALUES (2, 'world', '{f,e,e}');
```

t1:

1	hello	{f,o,o}
2	world	{f,e,e}

i1:

hello	1
world	2

i2:

e	2
f	1
f	2
o	1

Example

```
CREATE TABLE t1 (k int PRIMARY KEY, t text, a char[]);  
CREATE INDEX i1 ON t1 (t);  
CREATE INDEX i2 ON t1 USING gin (a);  
INSERT INTO t1 VALUES (1, 'hello', '{f,o,o}');  
INSERT INTO t1 VALUES (2, 'world', '{f,e,e}');  
SELECT * FROM t1 WHERE t = 'world';
```

t1:

1	hello	{f,o,o}
2	world	{f,e,e}

i1:

hello	1
world	2

i2:

e	2
f	1
f	2
o	1

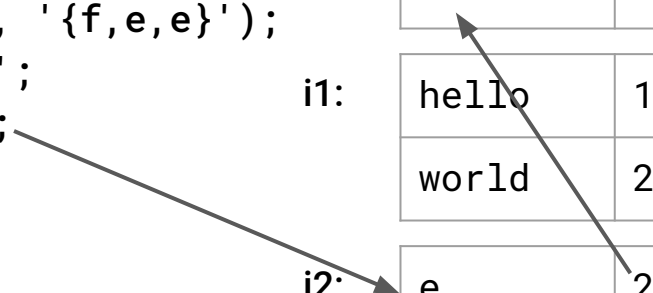
Example

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INSERT INTO t1 VALUES (1, 'hello', '{f,o,o}');
INSERT INTO t1 VALUES (2, 'world', '{f,e,e}');
SELECT * FROM t1 WHERE t = 'world';
SELECT * FROM t1 WHERE a @> '{e}';
```

t1:	1	hello	{f,o,o}
	2	world	{f,e,e}

i1:	hello	1
	world	2

i2:	e	2
	f	1
	f	2
	o	1



Example

```
CREATE TABLE t1 (k int PRIMARY KEY, t text, a char[]);  
CREATE INDEX i1 ON t1 (t);  
CREATE INDEX i2 ON t1 USING gin (a);  
INSERT INTO t1 VALUES (1, 'hello', '{f,o,o}');  
INSERT INTO t1 VALUES (2, 'world', '{f,e,e}');  
SELECT * FROM t1 WHERE t = 'world';  
SELECT * FROM t1 WHERE a @> '{e}';  
SELECT * FROM t1 WHERE a @> '{f}';
```

t1:	1	hello	{f,o,o}
	2	world	{f,e,e}

i1:	hello	1
	world	2

i2:	e	2
	f	1
	f	2
	o	1

Supported

Because of postgres reuse, a lot of GIN code comes for free

- Temp tables
- INSERT/DELETE/UPDATE
- Handling different types (tsvector, array, jsonb)
- Extensions

Future work (in progress)

<https://github.com/yugabyte/yugabyte-db/issues/7850>

- Multicolumn
- Certain selects
- Cost estimates
- Some extensions



Demo

Thank You

Join us on Slack: yugabyte.com/slack (#yftt channel)

Star us on Github: github.com/yugabyte/yugabyte-db

