

## Extension package pageinspect

This extension package provide variety of functions to inspect the contents of database at a low level. And all of the functions can be used only by superusers.

### I. General function

#### a. Read the information of the specified block.

`get_raw_page(relname text, fork text, blkno int)` returns bytea

`get_raw_page(relname text, blkno int)` returns bytea

*/\* This function is equal to `get_raw_page(relname, 'main', blkno) */`*

#### b. Read the header information of page

`page_header(page bytea)` returns record

*/\* In this function, the parameter page based on the overhead function \*/*

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select \* from page\_header(get\_raw\_page('test\_idx',1))

Data Output

Explain

Messages

Query History

	lsn pg_lsn	checksum smallint	flags smallint	lower smallint	upper smallint	special smallint	pagesize smallint	version smallint	prune_xid xid
1	44/E61EAF90	0	4	504	512	8192	8192	4	0

#### c. Compute the checksum for the page

`page_checksum(page bytea, blkno int4)` returns smallint

The checksum computed with this function can be compared with the checksum result field of the function `page_header`. If data checksums are enabled for this instance, then two should be equal.

#### d. Read the information of a page

`heap_page_items(page bytea)` returns setof record

select \* from heap\_page\_items (get\_raw\_page('test\_idx',0))

ta Output

Explain

Messages

Query History

lp smallint	lp_off smallint	lp_flags smallint	lp_len smallint	t_xmin xid	t_xmax xid	t_field3 integer	t_ctid tid	t_infomask2 integer	t_infomask integer	t_hoff smallint	t_bits text	t_oid oid	t_data bytea
1	1	8128	1	61	53108846	0	0 (0,1)	2	2306	24	[null]	[null]	[binary data]
2	2	8064	1	61	53108846	0	0 (0,2)	2	2306	24	[null]	[null]	[binary data]

#### e. `heap_page_item_attrs(rel_oid, t_data bytea, [, do_detoast bool])` returns bytea[]

This function is similar with the overhead function except the `t_data`

#### f. `fsm_page_contents(page bytea)` returns text

```
16 select * from fsm_page_contents (get_raw_page('test_idx',0))
```

Data Output	Explain	Messages	Query History
fsm_page_contents text			
1 0: 128 1: 159 2: 122 4: 64 5: 159 6: 122 9: 159 10: 122 12: 192 13: 158 14: 122 16: 128 17: 158 18: 122 20: 64 21: 158 22: 122 25: 158 26: 122 28: 192 29: 157 30:...			

Show the internal node structure of a FSM(free space mapping) page.

### II. B-tree function

#### a. `bt_metap(relname text)` returns record

```
24 select * from bt_metap('idx_test_idx')
```

Data Output							Explain	Messages	Query History
	magic integer	version integer	root integer	level integer	fastroot integer	fastlevel integer			
1	340322	2	3	1	3	1			

Show the information about a B-tree index's metapage

- b. show the summary information about single pages of B-tree

`bt_page_stats(relname text, blkno int)` returns record

```
25 select * from bt_page_stats('idx_test_idx',1)
26 select * from bt_page_stats('idx_test_idx',2)
```

Data Output											<a href="#">Explain</a>	<a href="#">Messages</a>	<a href="#">Query History</a>
blkno integer	type "char" (1)	live_items integer	dead_items integer	avg_item_size integer	page_size integer	free_size integer	btpo_prev integer	btpo_next integer	btpo integer	btpo_flags integer			
1	1	367	0	16	8192	808	0	2	0	1			

- c. show the detailed information about a single page

`bt_page_items(relname text, blkno int)` returns setof record

```
26 select * from bt_page_items('idx_test_idx',2)
```

Data Output							<a href="#">Explain</a>	<a href="#">Messages</a>	<a href="#">Query History</a>
	itemoffset smallint	ctid tid	itemlen smallint	nulls boolean	vars boolean	data text			
1		1 (6,13)	16	false	false	dd 0...			
2		2 (3,7)	16	false	false	6f 01...			

- d. `bt_page_items(page bytea)` returns setof record

This function is same as the `overhead` function.

```
27 select * from bt_page_items(get_raw_page('idx_test_idx',2))
```

Data Output							Explain	Messages	Query History
	itemoffset smallint	ctid tid	itemlen smallint	nulls boolean	vars boolean	data text			
355	355	(5,12...	16	false	false	d0 0...			
356	356	(6,1)	16	false	false	d1 0...			
357	357	(6,2)	16	false	false	d2 0...			

### III. BRIN functions

- a. Show the type of the given BRIN index page

`brin_page_type(page bytea)` returns text

- b. Show the information about BRIN index

`brin_metapage_info(page bytea)` returns record

- c. Show the list of tuple identifiers in a BRIN index range map page

`brin_revmap_data(page bytea)` returns setof tid

- d. Show the detailed information about BRIN index

`brin_page_items(page bytea, index oid)` returns setof record

### IV. GIN functions

- a. Show information about a GIN index metapage

`gin_metapage_info(page bytea)` returns record

- b. Show information about a GIN index opaque area, like the page type

`gin_page_opaque_info(page bytea)` returns record

- c. Show information about the data stored in a GIN leaf page

`gin_leafpage_items(page bytea)` returns setof record

V. Hash functions

- a. Show type of the given hash index

`hash_page_type(page bytea)` returns text

- b. Show information about a bucket or overflow page of a HASH index

`hash_page_stats(page bytea)` returns setof record

- c. Show detailed information about the data stored in a bucket or overflow page of a HASH index page

`hash_page_items(page bytea)` returns setof record

- d. shows the status of a bit in the bitmap page for a particular overflow page of HASH index

`hash_bitmap_info(index oid, blkno int)` returns record

- e. show information stored in meta page of a HASH index

`hash_metapage_info(page bytea)` returns record