SQL function return-type: TABLE vs SETOF records

Asked 9 years, 7 months ago Modified 3 years, 11 months ago Viewed 22k times



What's the difference between a function that returns TABLE vs SETOF records, all else equal.

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```
CREATE FUNCTION events_by_type_1(text) RETURNS TABLE(id bigint, name text) AS
$$
    SELECT id, name FROM events WHERE type = $1;
$$ LANGUAGE SQL STABLE;
```

```
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```

CREATE FUNCTION events_by_type_2(text) RETURNS SETOF record AS \$\$
 SELECT id, name FROM events WHERE type = \$1;
\$\$ LANGUAGE SQL STABLE;

These functions seem to return the same results. See this <u>SQLFiddle</u>.

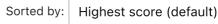
```
sql postgresql return-type sql-function sql-types
```

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asked Mar 15, 2014 at 12:43



2 Answers







When returning SETOF record the output columns are not typed and not named. Thus this form can't be used directly in a FROM clause as if it was a subquery or a table.

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That is, when issuing:



SELECT * from events_by_type_2('social');





we get this error:

1

ERROR: a column definition list is required for functions returning "record"

It can be "casted" into the correct column types by the SQL caller though. This form does work:

```
SELECT * from events_by_type_2('social') as (id bigint, name text);
```

and results in:

id		name		
		Dance Happy	,	

For this reason SETOF record is considered less practical. It should be used only when the column types of the results are not known in advance.

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edited Oct 31, 2019 at 22:22 ma11hew28

122k 117 451 651

answered Mar 15, 2014 at 13:02



Daniel Vérité

58.4k 15 129 156

@MattDiPasquale: I'm not aware of any performance difference. However in both cases if using these functions in more complex queries, you might be interested in <u>How to avoid multiple</u> <u>function evals with the (func()).* syntax in an SQL query?</u> – Daniel Vérité Mar 15, 2014 at 15:33



This answer is only to remember alternative **context where** *TABLE* **and** *SETOF* **are equivalent**.





As @a_horse_with_no_name pointed, it is not a *RETURNS SETOF "unknown record"*, is a defined one.



In this example, the types table and setof are equivalent,



The *RETURNS SETOF* have the **advantage of reuse type** (see *footype*), that is impossible with *RETURNS TABLE*.

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edited Mar 14, 2016 at 15:37

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Peter Krauss

2 returns setof footype is something different then RETURNS SETOF record because now it's no longer an "unknown" type. The columns of footype are well defined. – user330315 Mar 14, 2016 at 15:06

Thank you, @PeterKrauss. :-) - ma11hew28 Oct 31, 2019 at 22:28