41.8. Errors and Messages

41.8.1. Reporting Errors and Messages

Use the RAISE statement to report messages and raise errors.

```
RAISE [ level ] 'format' [, expression [, ... ]] [ USING option = expression [, ... ] ];
RAISE [ level ] condition_name [ USING option = expression [, ... ] ];
RAISE [ level ] SQLSTATE 'sqlstate' [ USING option = expression [, ... ] ];
RAISE [ level ] USING option = expression [, ... ];
RAISE ;
```

The ***level*** option specifies the error severity. Allowed levels are DEBUG, LOG, INFO, NOTICE, WARNING, and EXCEPTION, with EXCEPTION being the default. EXCEPTION raises an error (which normally aborts the current transaction); the other levels only generate messages of different priority levels. Whether messages of a particular priority are reported to the client, written to the server log, or both is controlled by the log_min_messages and client_min_messages configuration variables. See Chapter 19 for more information.

After ***level*** if any, you can write a ***format*** (which must be a simple string literal, not an expression). The format string specifies the error message text to be reported. The format string can be followed by optional argument expressions to be inserted into the message. Inside the format string, % is replaced by the string representation of the next optional argument's value. Write %% to emit a literal %. The number of arguments must match the number of % placeholders in the format string, or an error is raised during the compilation of the function.

In this example, the value of v_job_id will replace the % in the string:

```
RAISE NOTICE 'Calling cs_create_job(%)', v_job_id;
```

You can attach additional information to the error report by writing USING followed by ***option*** = ***expression*** items. Each ***expression*** can be any string-valued expression. The allowed ***option*** key words are:

MESSAGE

Sets the error message text. This option can't be used in the form of RAISE that includes a format string before USING.

DETAIL

Supplies an error detail message.

HINT

Supplies a hint message.

ERRCODE

Specifies the error code (SQLSTATE) to report, either by condition name, as shown in Appendix A, or directly as a five-character SQLSTATE code.

COLUMN
CONSTRAINT
DATATYPE
TABLE
SCHEMA

Supplies the name of a related object.

This example will abort the transaction with the given error message and hint:

```
RAISE EXCEPTION 'Nonexistent ID --> %', user_id
      USING HINT = 'Please check your user ID';
```

These two examples show equivalent ways of setting the SQLSTATE:

```
RAISE 'Duplicate user ID: %', user_id USING ERRCODE = 'unique_violation';
RAISE 'Duplicate user ID: %', user_id USING ERRCODE = '23505';
```

There is a second RAISE syntax in which the main argument is the condition name or SQLSTATE to be reported, for example:

```
RAISE division_by_zero;
RAISE SQLSTATE '22012';
```

In this syntax, USING can be used to supply a custom error message, detail, or hint. Another way to do the earlier example is

```
RAISE unique_violation USING MESSAGE = 'Duplicate user ID: ' || user_id;
```

Still another variant is to write RAISE USING or RAISE ***level*** USING and put everything else into the USING list.

The last variant of RAISE has no parameters at all. This form can only be used inside a BEGIN block's EXCEPTION clause; it causes the error currently being handled to be re-thrown.

Note: Before PostgreSQL 9.1, RAISE without parameters was interpreted as re-throwing the error from the block containing the active exception handler. Thus an EXCEPTION clause nested within that handler could not catch it, even if the RAISE was within the nested EXCEPTION clause's block. This was deemed surprising as well as being incompatible with Oracle's PL/SQL.

If no condition name nor SQLSTATE is specified in a RAISE EXCEPTION command, the default is to use ERRCODE_RAISE_EXCEPTION (P0001). If no message text is specified, the default is to use the condition name or SQLSTATE as message text.

Note: When specifying an error code by SQLSTATE code, you are not limited to the predefined error codes, but can select any error code consisting of five digits and/or upper-case ASCII letters, other than 00000. It is recommended that you avoid throwing error codes that end in three zeroes, because these are category codes and can only be trapped by trapping the whole category.

41.8.2. Checking Assertions

The ASSERT statement is a convenient shorthand for inserting debugging checks into PL/pgSQL functions.

```
ASSERT condition [ , message ];
```

The ***condition*** is a Boolean expression that is expected to always evaluate to true; if it does, the ASSERT statement does nothing further. If the result is false or null, then an ASSERT_FAILURE exception is raised. (If an error occurs while evaluating the ***condition***, it is reported as a normal error.)

If the optional ***message*** is provided, it is an expression whose result (if not null) replaces the default error message text "assertion failed", should the ***condition*** fail. The ***message*** expression is not evaluated in the normal case where the assertion succeeds.

Testing of assertions can be enabled or disabled via the configuration parameter plpgsql.check_asserts, which takes a Boolean value; the default is on. If this parameter is off then ASSERT statements do nothing.

Note that ASSERT is meant for detecting program bugs, not for reporting ordinary error conditions. Use the RAISE statement, described above, for that.