

# DE-MYSTIFYING CONTRIBUTING TO POSTGRESQL

PGCON OTTAWA  
2018-05-31

Lætitia AVROT  
Loxodata

# WHO



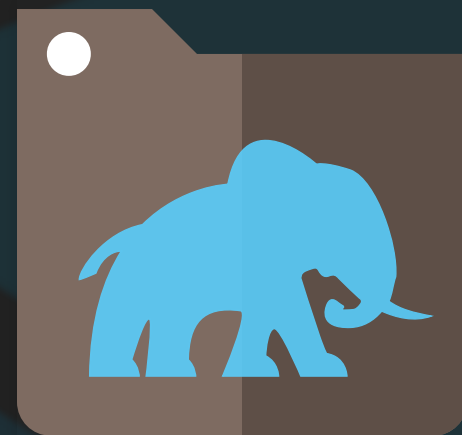
Lætitia Avrot

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- PostgreSQL consultant and teacher
- DBA PostgreSQL for more than 10 years (and also Oracle and SQL Server)
- @l\_avrot

# LOXODATA

Company built on 3 essential pillars



PostgreSQL

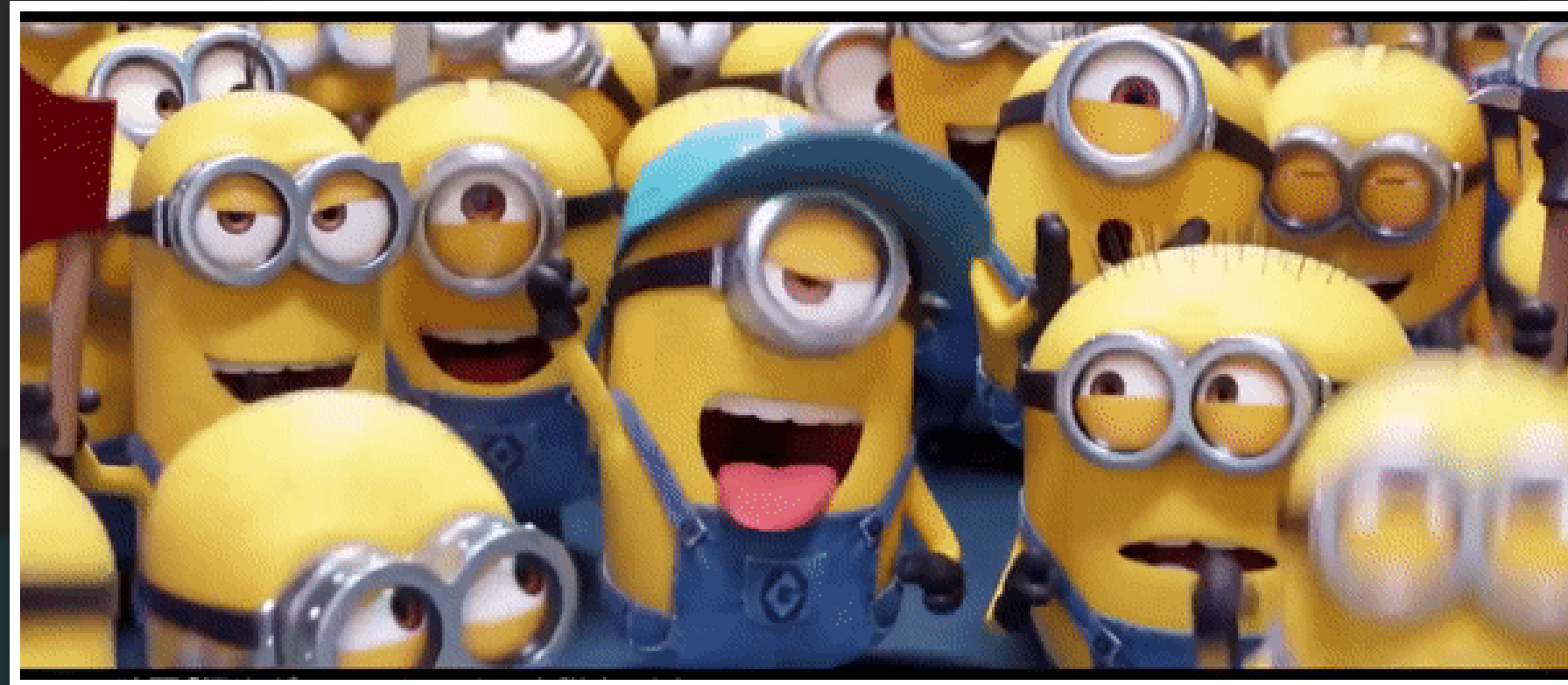


DevOps



Cloud

# WHAT



## Contributing to PostgreSQL

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- The PostgreSQL community
- The PostgreSQL projects and tools
- The story of my patch
- How you can help

# THE COMMUNITY



## The PostgreSQL Community

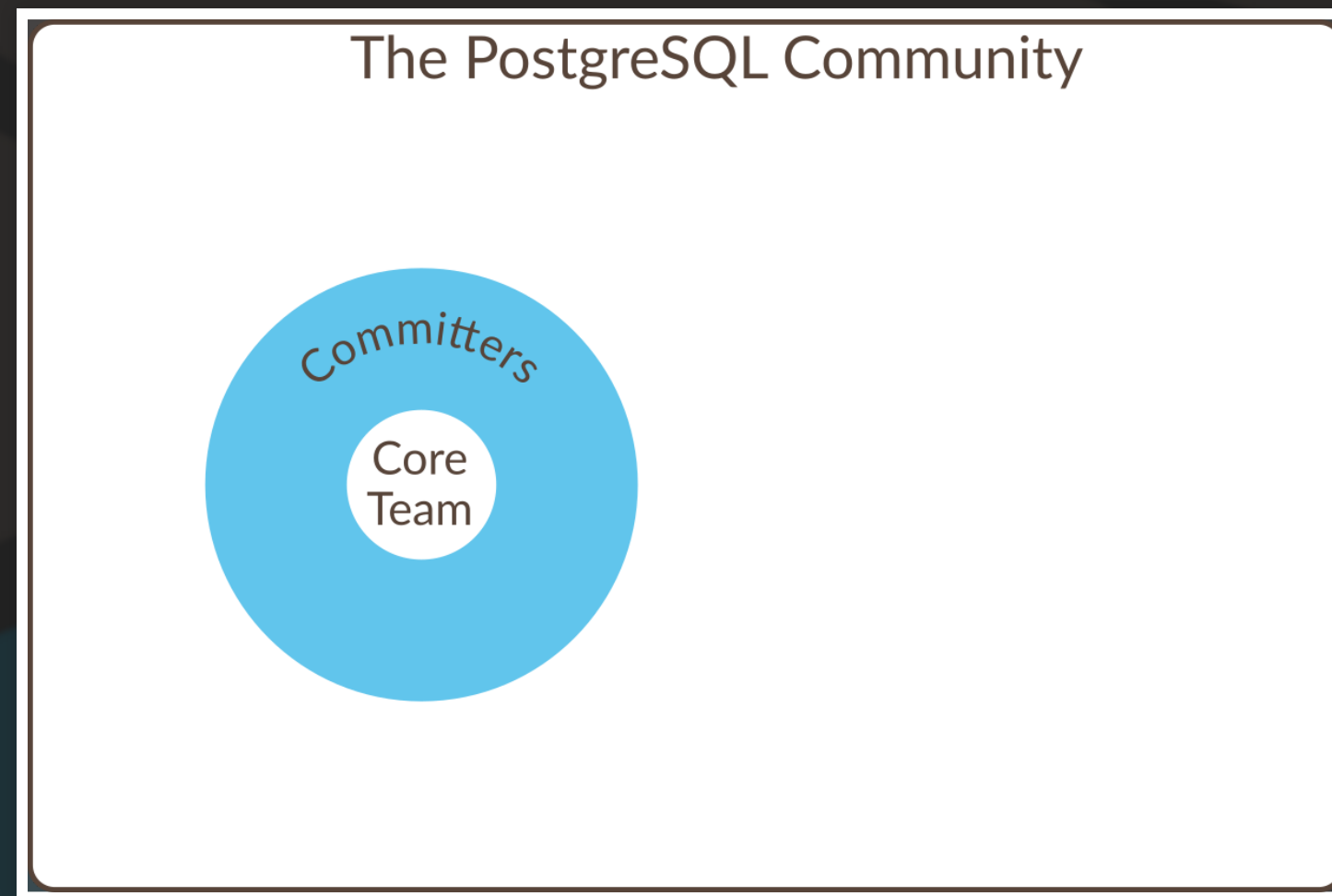
## The PostgreSQL Community

Core  
Team

### The core team

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- 5 members
- Independant
- Act as project managers

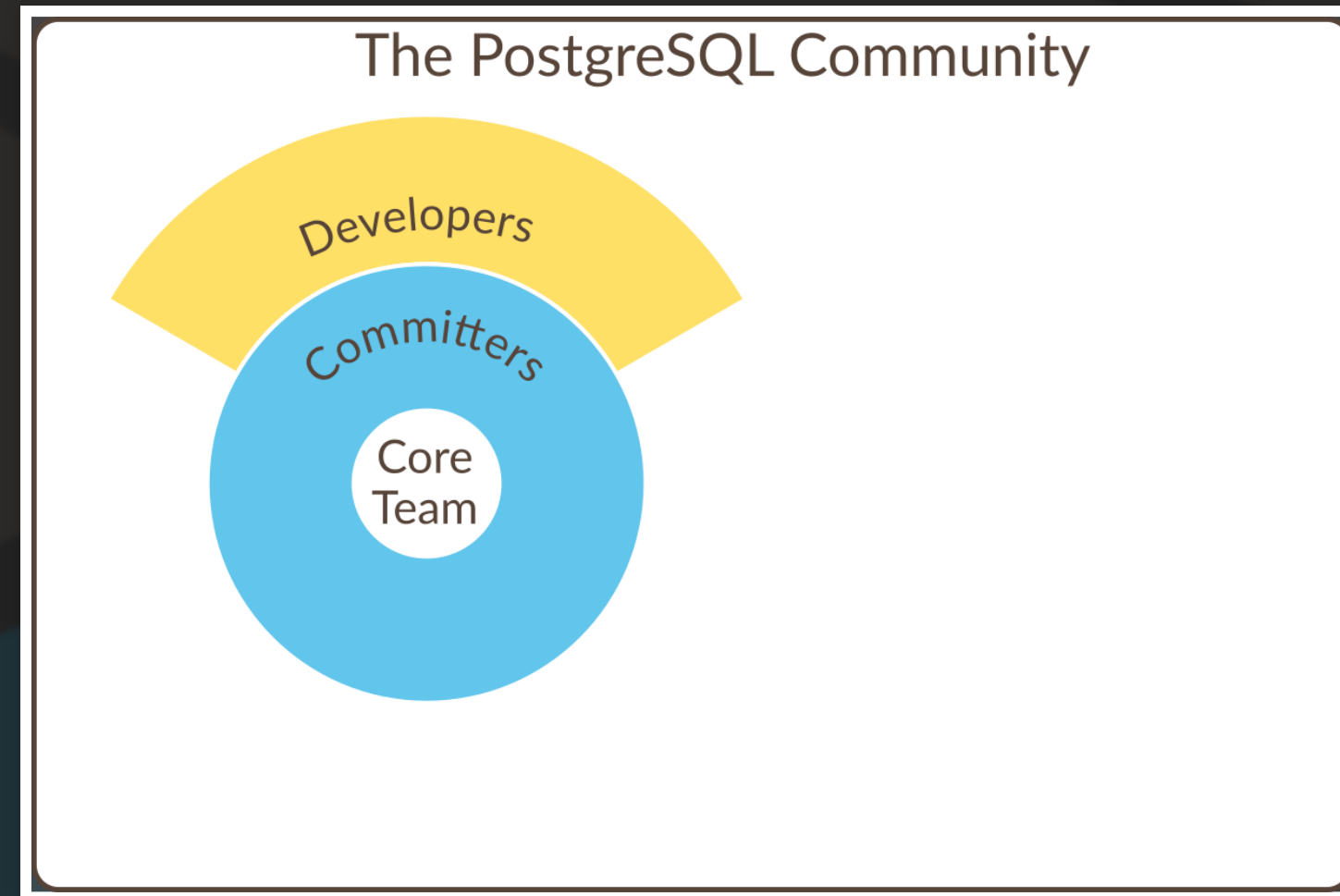


## Committers

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- More or less 15 members
- Have git push permissions
- Responsible for code quality

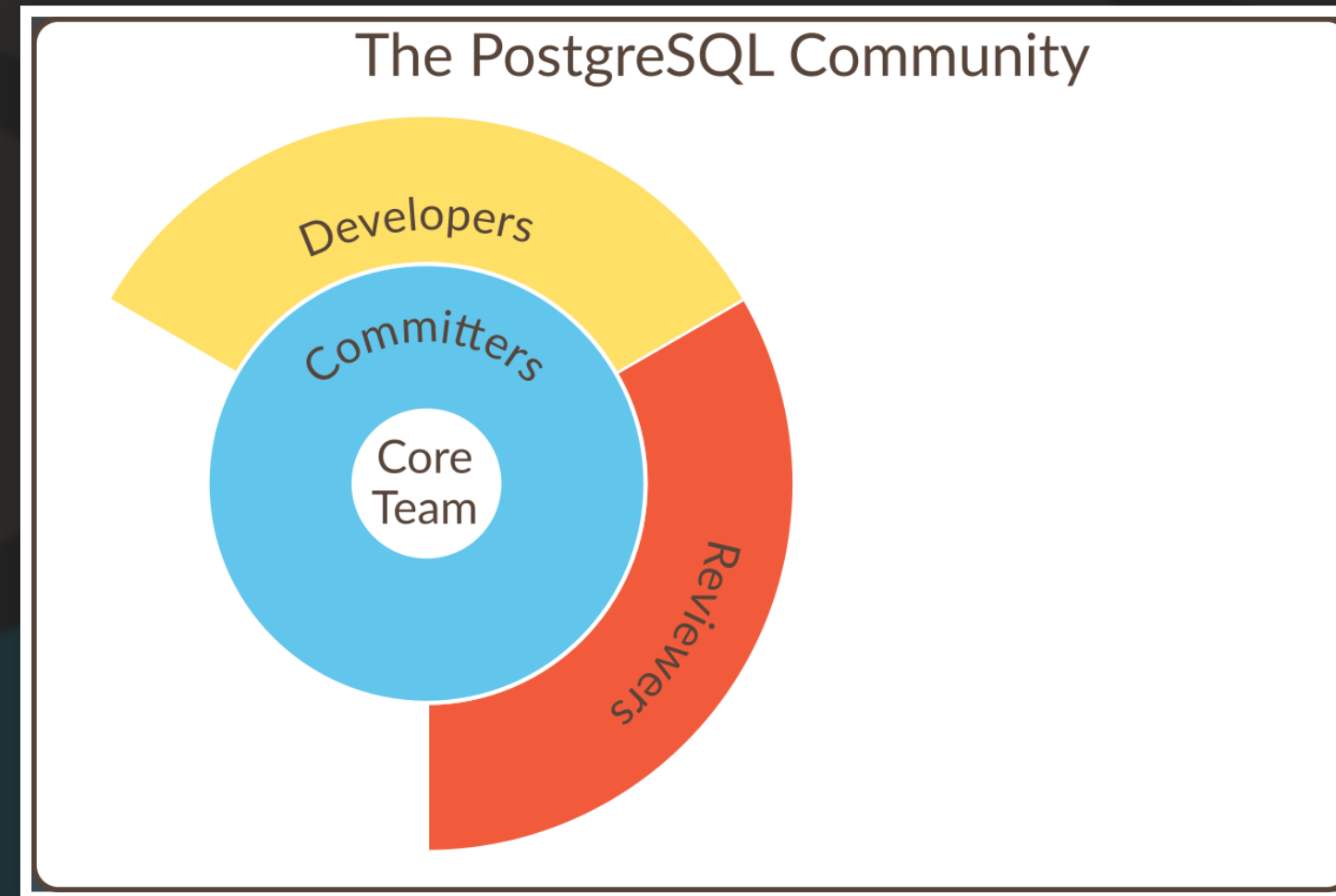




## Developers

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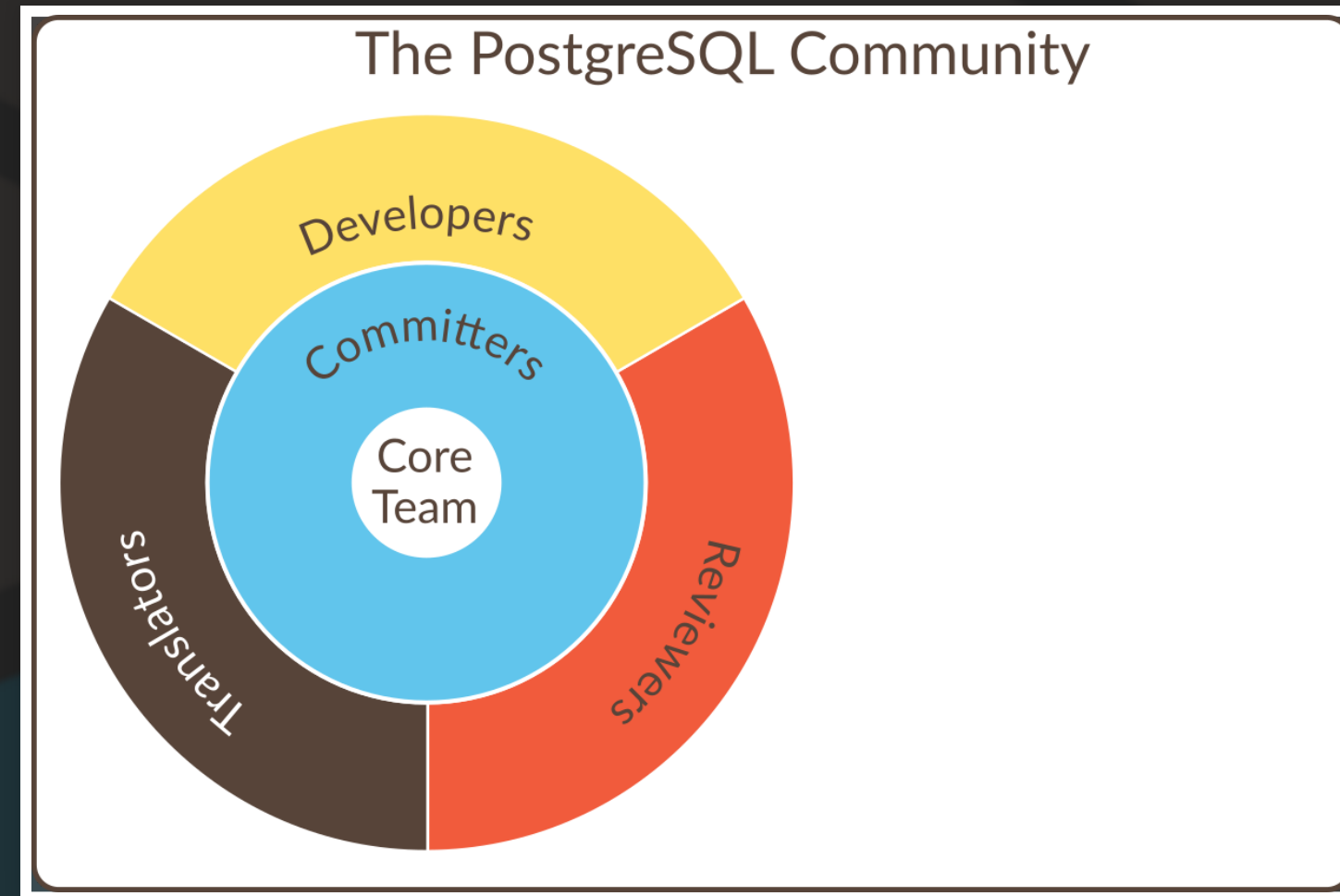
- C code
- Need to comply with [style guide](#)
- Need to comment (a lot)



## Reviewers

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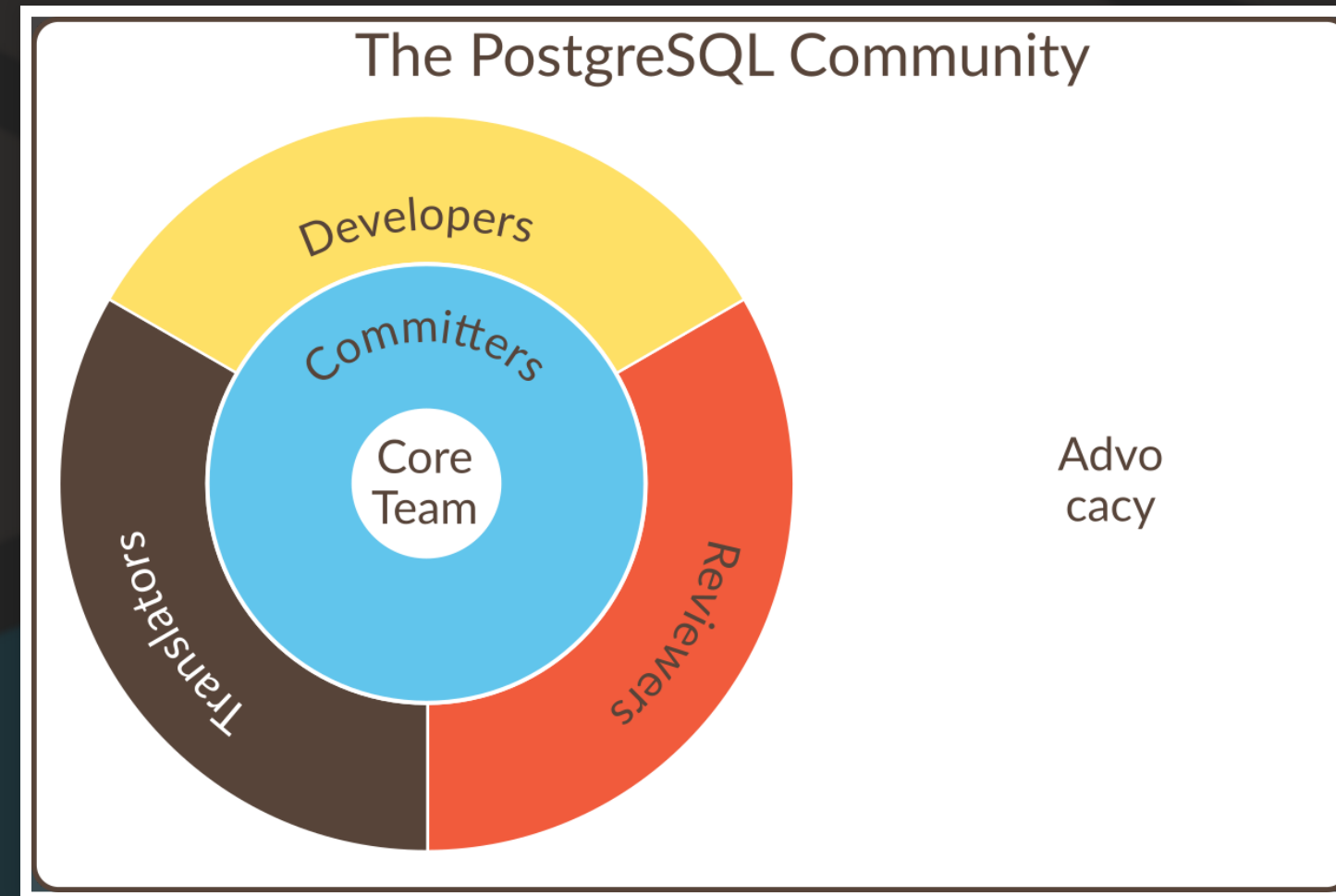
- No need to be a dev
- But technical background needed
- If you don't understand it, others won't



## Translators

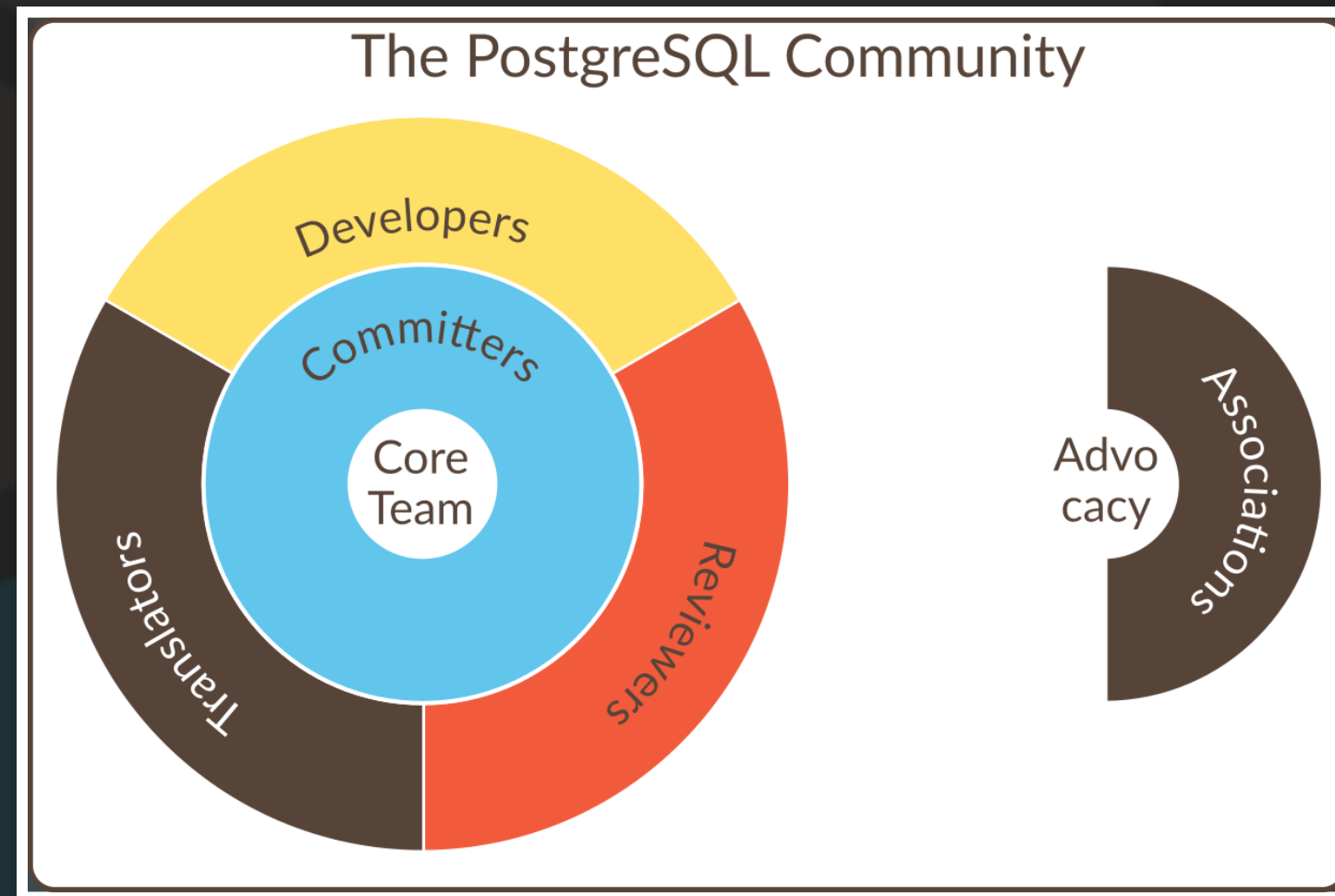
---

- No need to be a dev
- Software messages
- Documentation
- Others (press releases...)



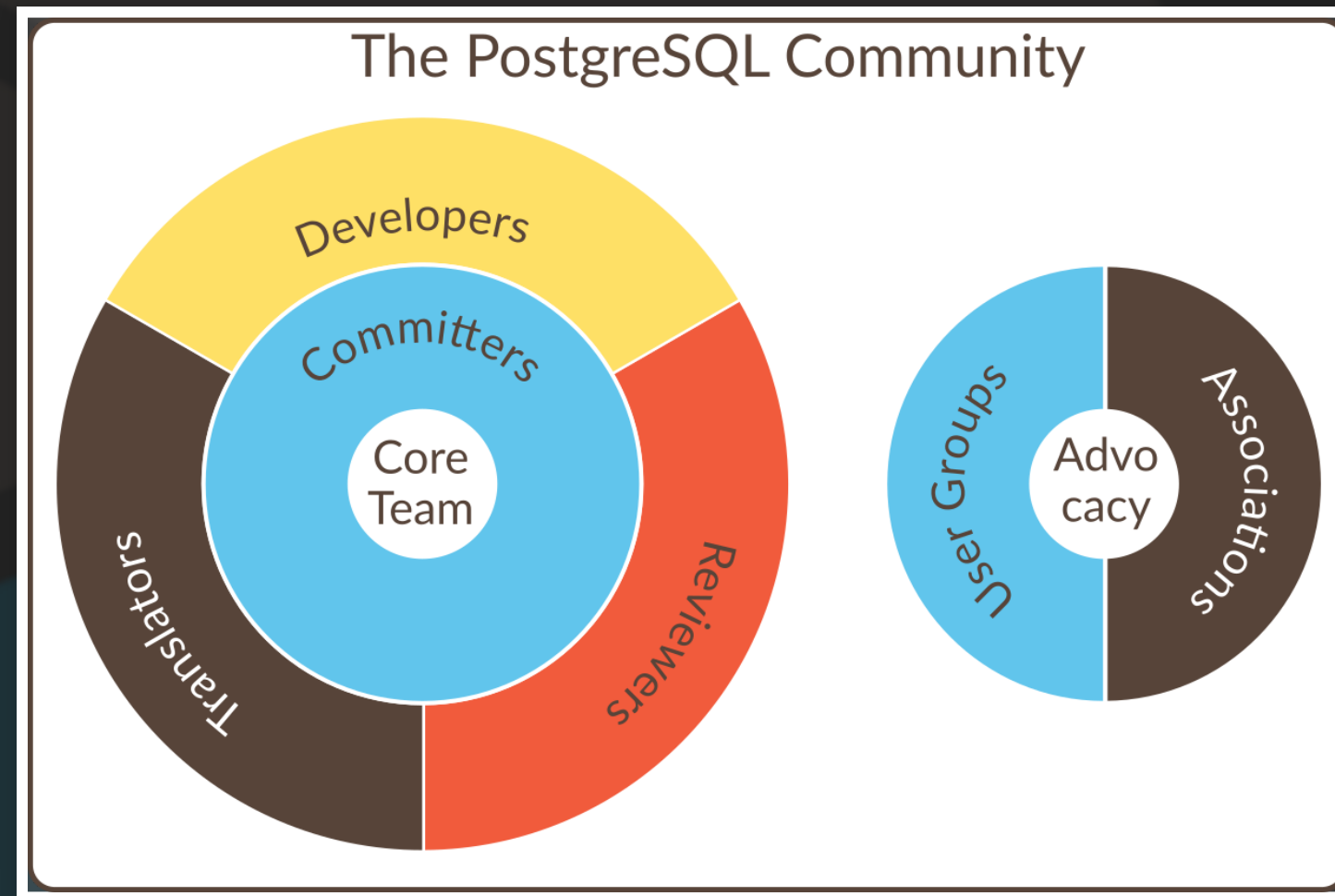
## Advocacy

- Promote PostgreSQL use
- Share informations about PostgreSQL
- Regional [press contacts](#)



## Associations

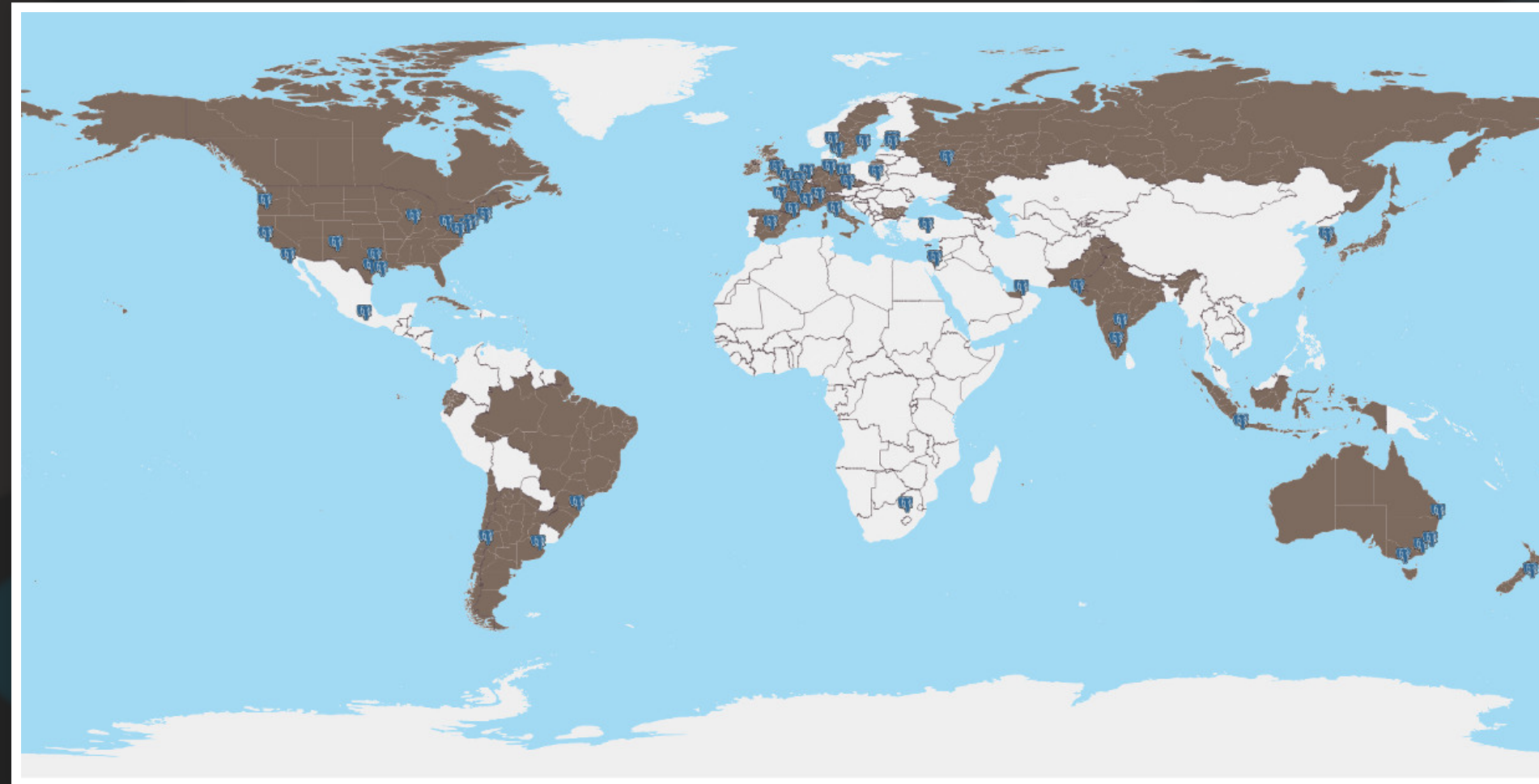
- Small to large groups of users
- National or international



## Local user groups

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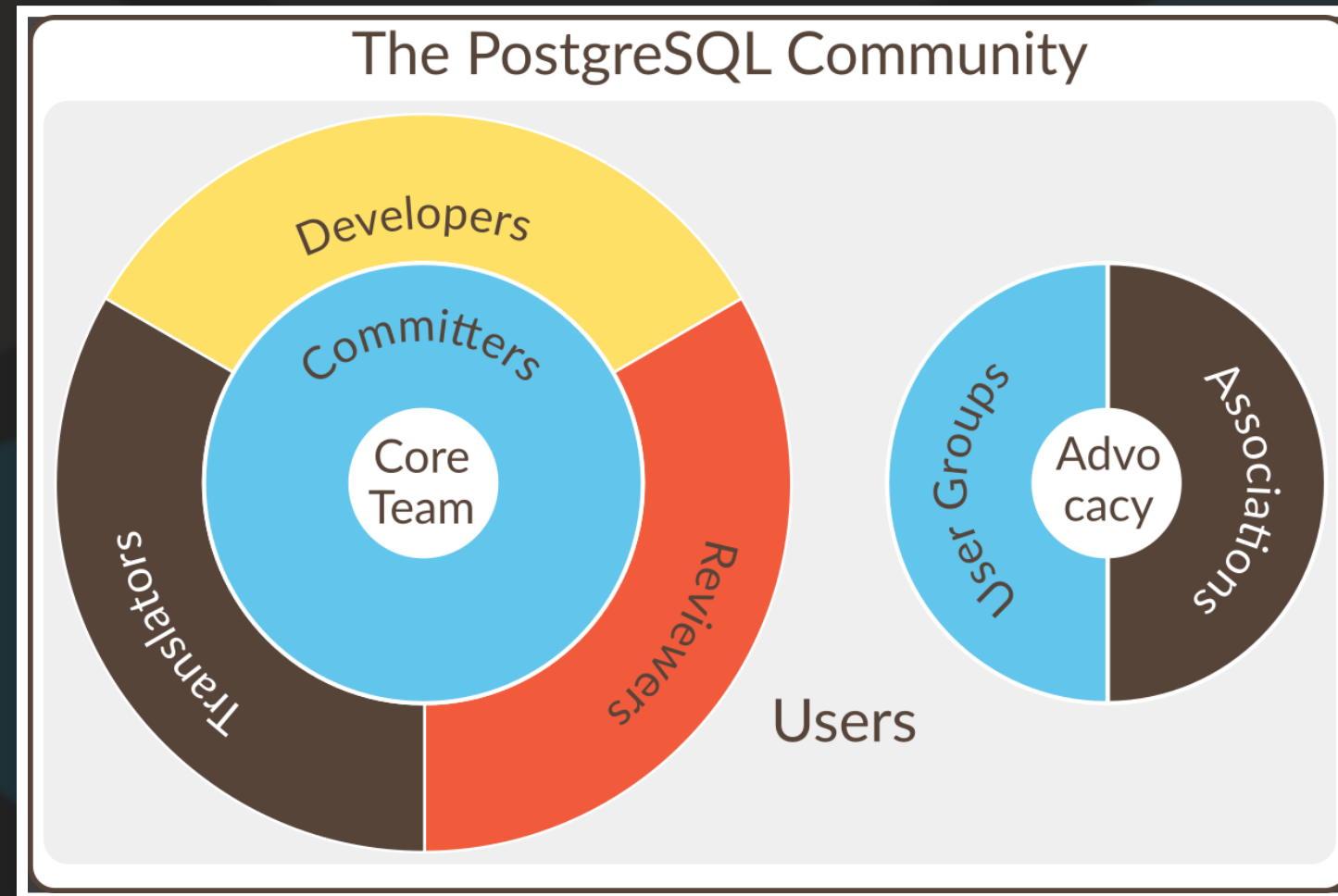
- Local (Cities or Countries)
- Mostly Meetups



## Local User Groups and Meetups

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- User gathering
- Sharing thoughts, use cases, issues...



Users



# PROJECTS

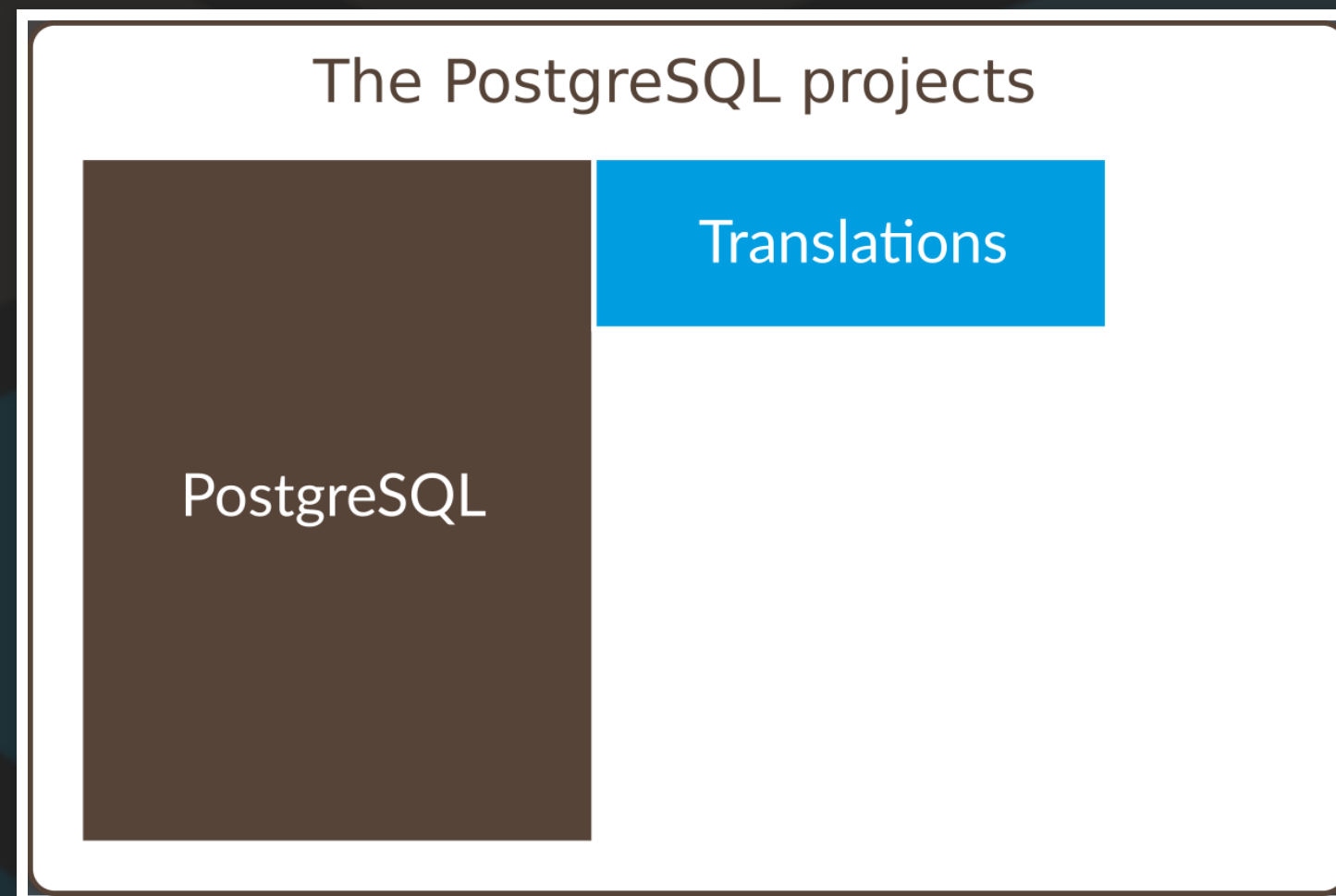


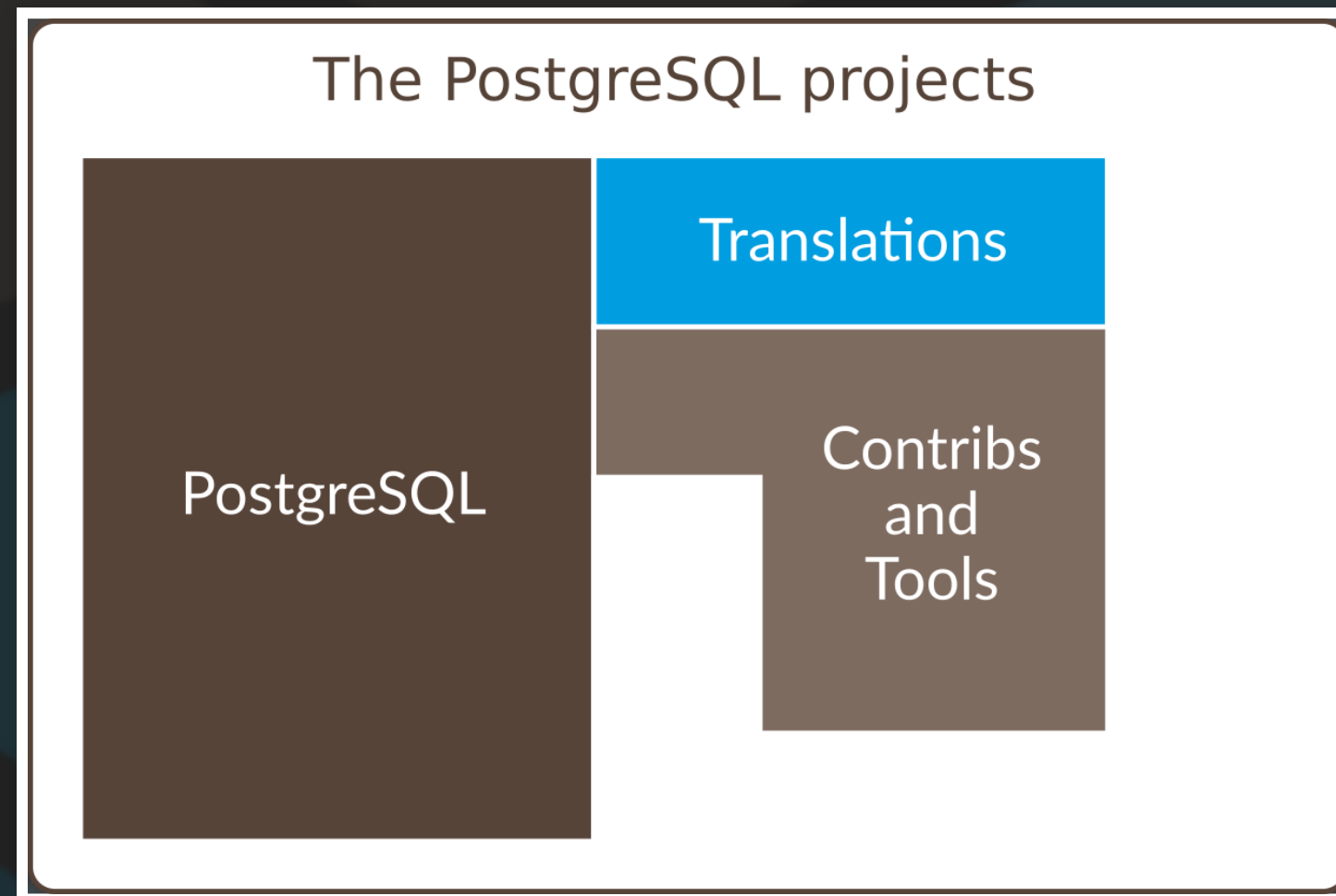
## The PostgreSQL projects

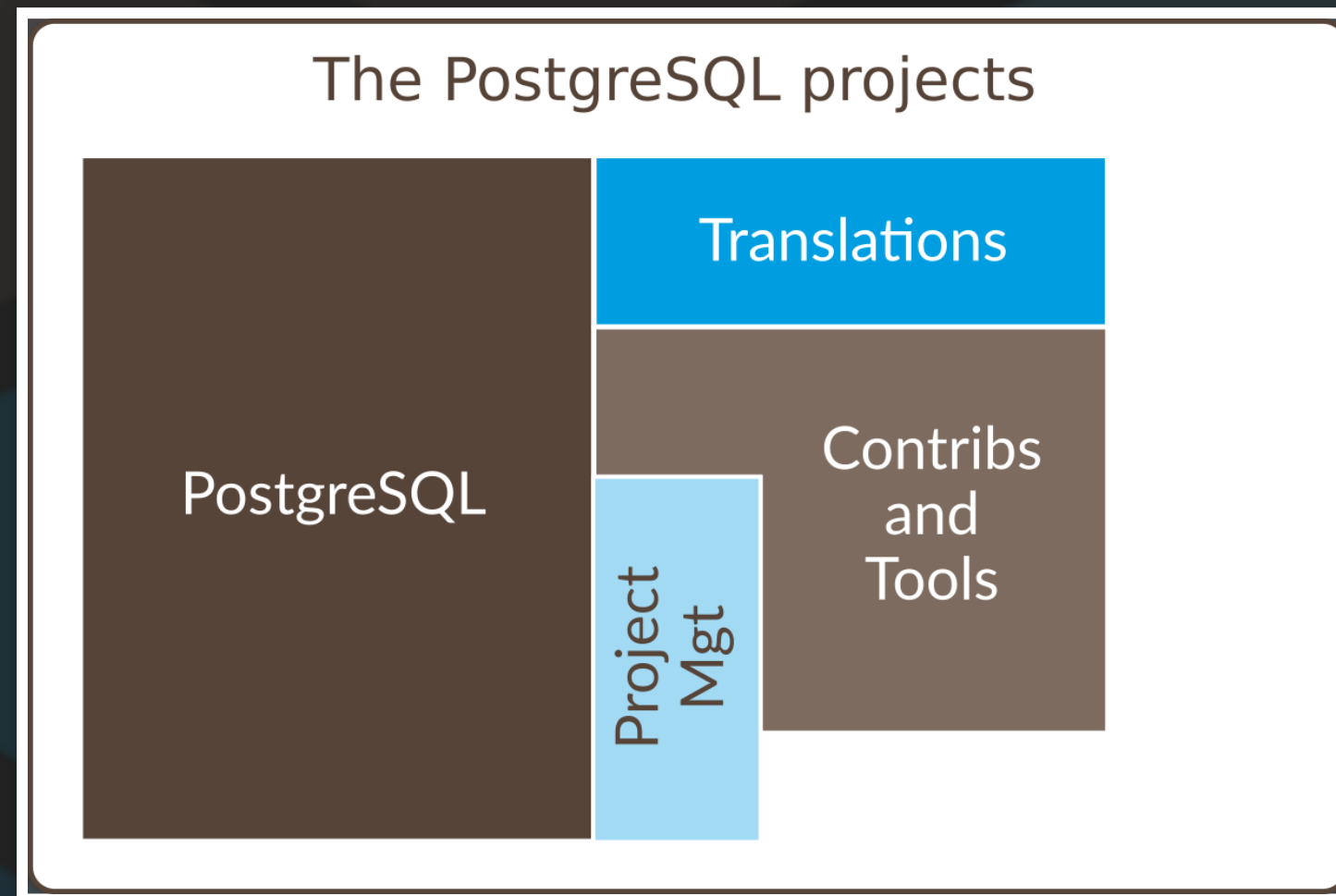
## The PostgreSQL projects

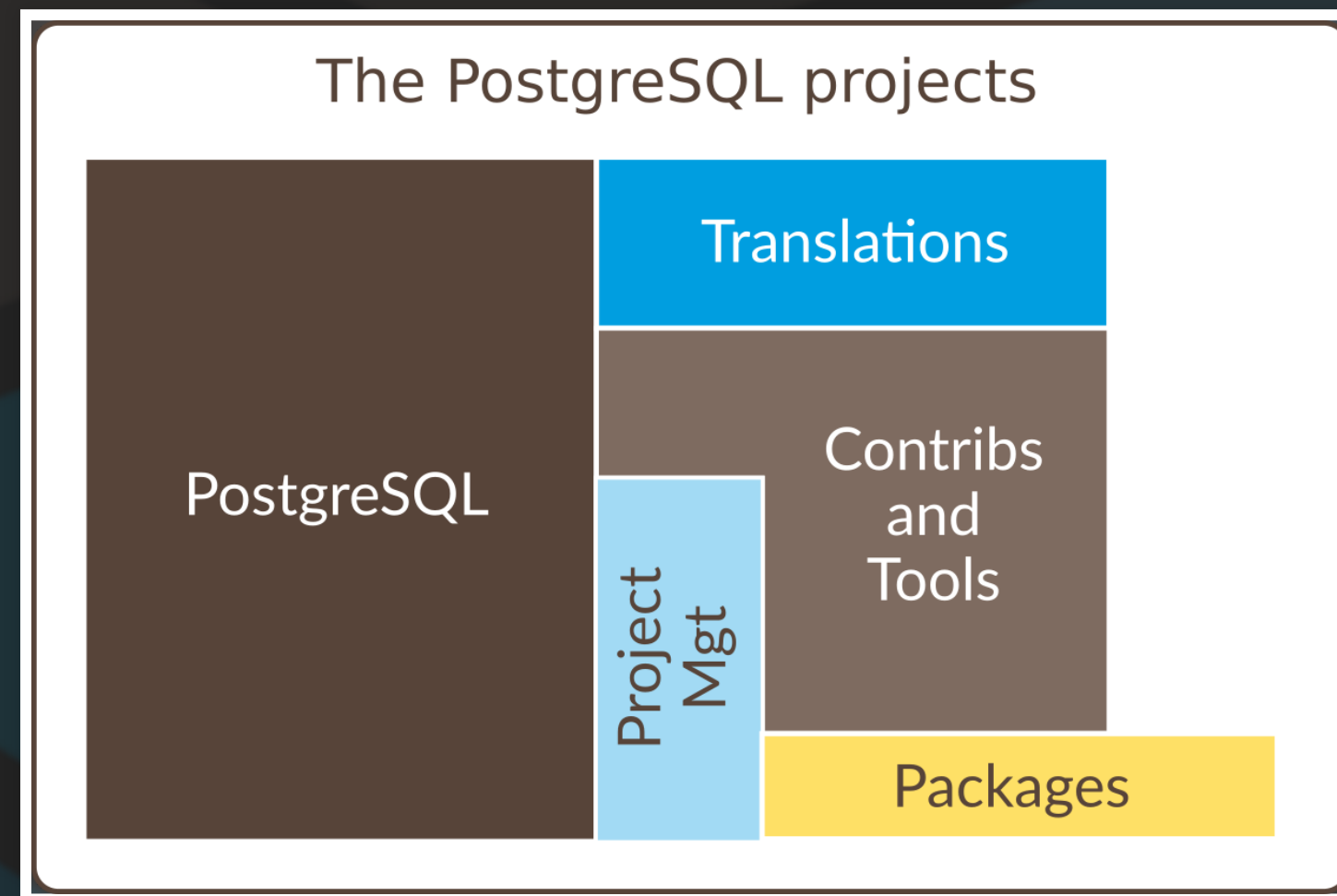


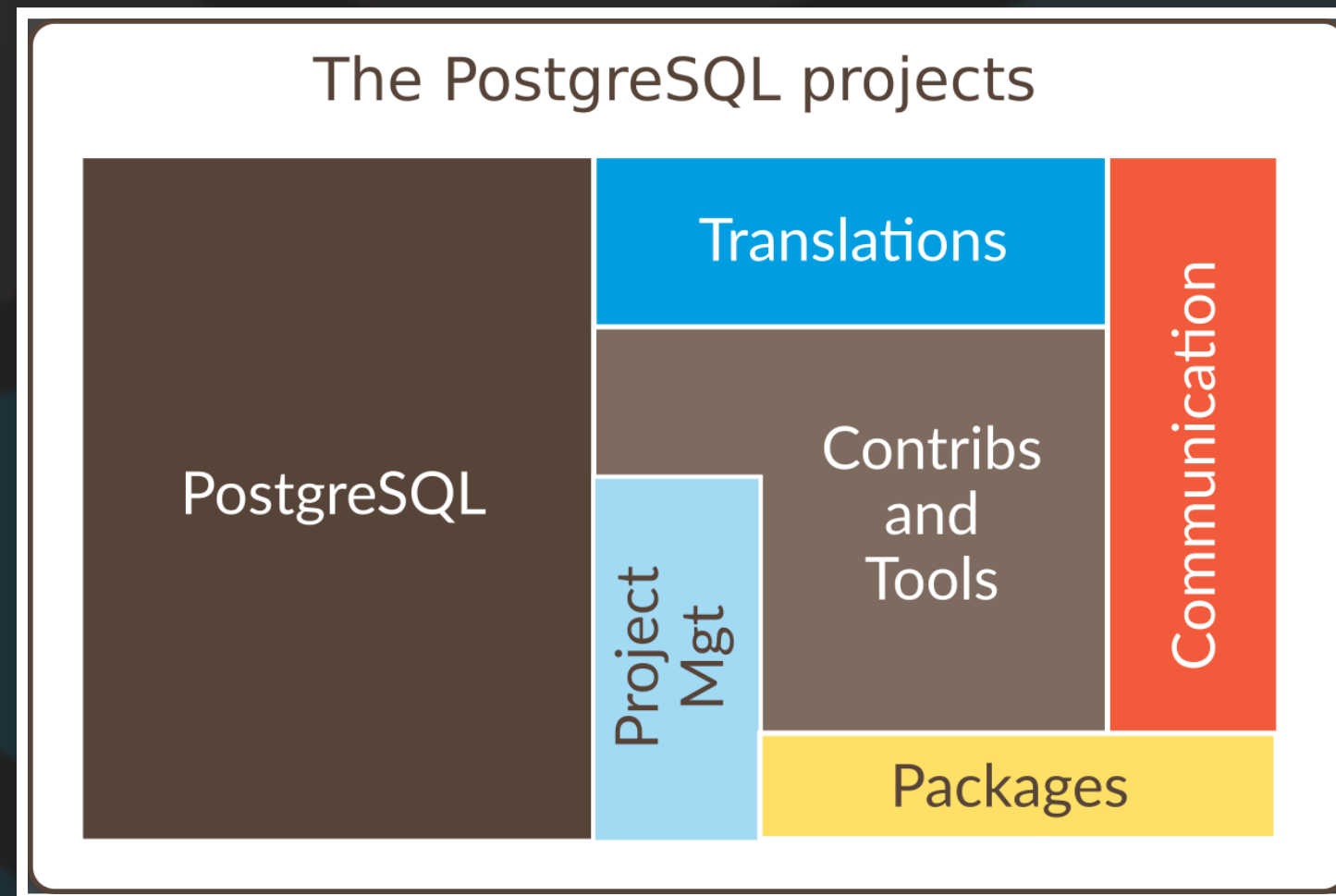
PostgreSQL















## The road map

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- 1 major release per year
- 1 minor release per quarter (minimum)



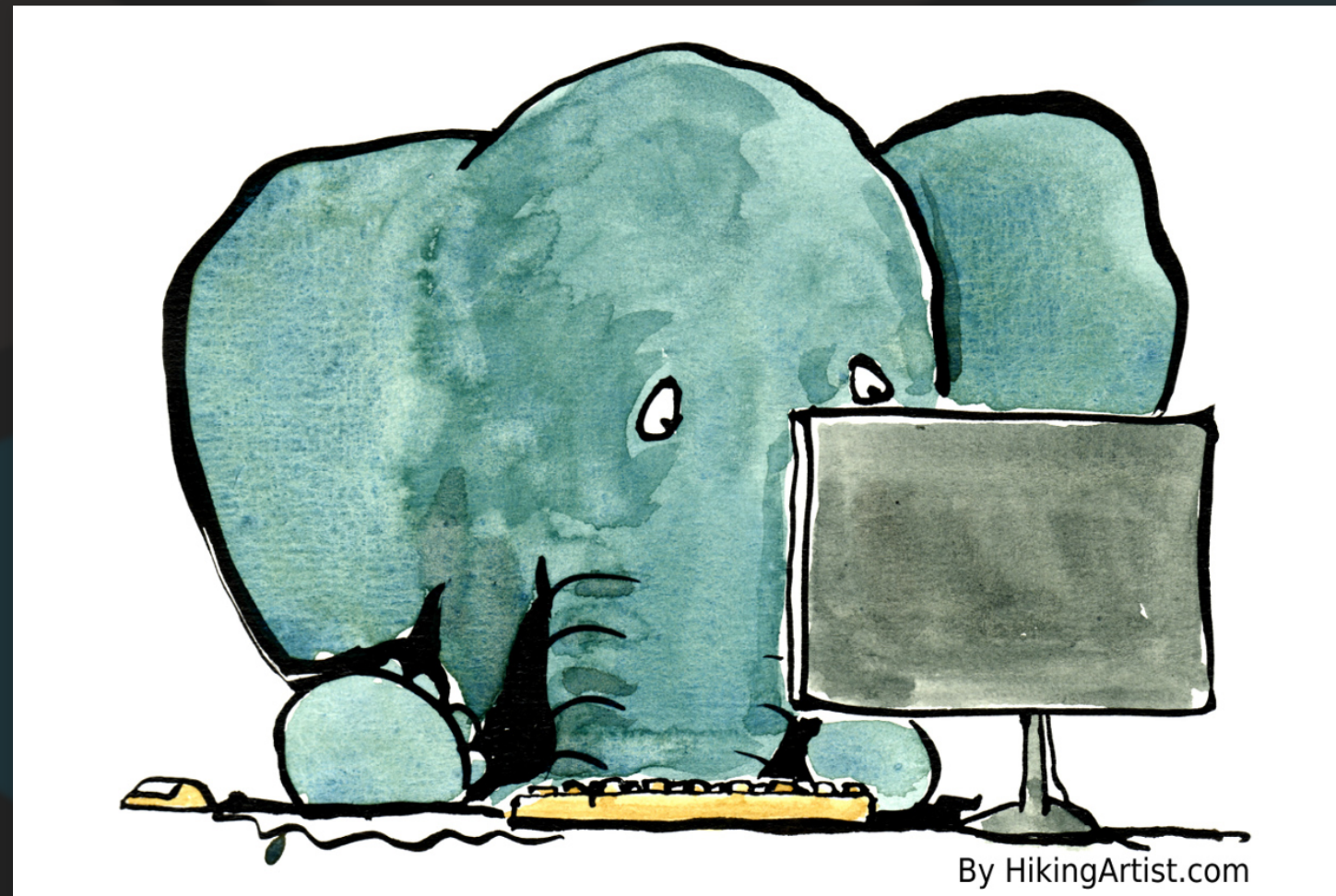
## Commitfests

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- 1 month long
- When most patches are committed
- Needs a commitFest Manager

[commitfest.postgresql.org](https://commitfest.postgresql.org)





Websites

## Websites

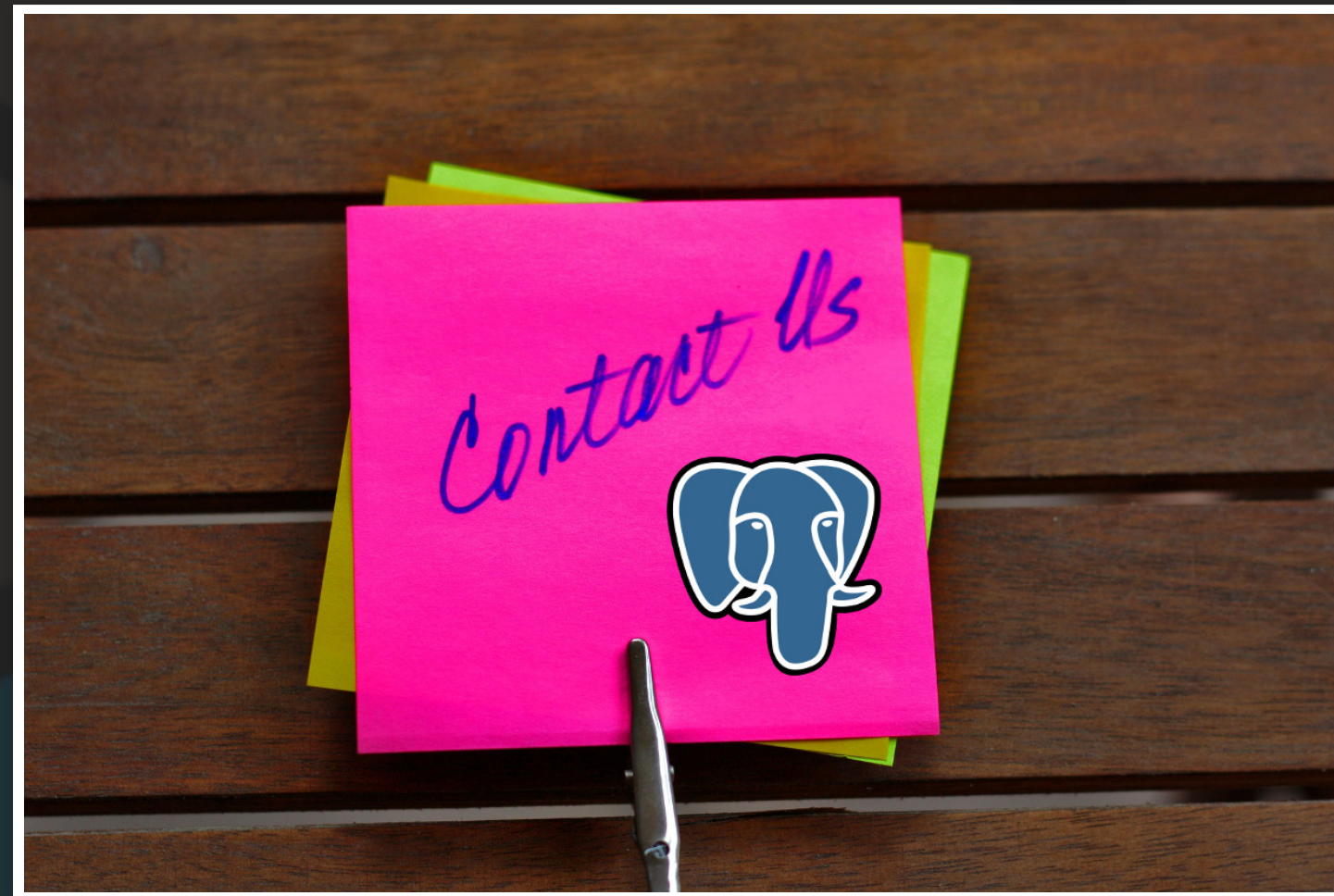
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[www.postgresql.org](http://www.postgresql.org)

[wiki.postgresql.org](http://wiki.postgresql.org)

[www.postgresql.org/docs](http://www.postgresql.org/docs)

[planet.postgresql.org](http://planet.postgresql.org)



## Mailing-lists

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- Bug submission (use the [form](#))
- postgresql-novice for newcomers
- Special lists for associations and local groups
- postgresql-hackers (be carefull, these guys are SO chatty)



## Habits about mailing-lists

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- Use [inline replying](#)
- Reply to all
- Be respectfull (but who needs that reminder ?)



Security issues :  
[security@postgresql.org](mailto:security@postgresql.org)



## IRC

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- Live chat with other PostgreSQL users
- Don't ask to ask, just ask!
- Chanel #postgresql on [irc.freenode.net](https://irc.freenode.net)

irc.freenode.net



## Twitter

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- Stay in touch with other PostgreSQL users
- Brand new community account : [@postgresql](https://twitter.com/postgresql)



## Other ways to stay in touch

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- Postgres [Slack](#)
- Postgres [hangout](#)
- Forums (as [stackexchange](#))



## Git

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- if you don't know git, don't be afraid
  - `git clone`
  - `git pull (--rebase)`
  - `git diff`
- Use the PostgreSQL [Wiki page](#)

# MY FIRST PATCH





## What's a patch?

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*A patch is a piece of software designed to update a computer program or its supporting data, to fix or improve it.*

Source : Wikipedia





## My story

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- Missing section in ALTER TABLE documentation
- Discussion with peers
- Bug reporting
- Patch creation with guru mentors
- Patch submission

```

ADD [ COLUMN ] column data_type [ COLLATE collation ] [ column_constraint [ ... ] ]
DROP [ COLUMN ] [ IF EXISTS ] column [ RESTRICT | CASCADE ]
ALTER [ COLUMN ] column [ SET DATA ] TYPE data_type [ COLLATE collation ] [ USING expression ]
ALTER [ COLUMN ] column SET DEFAULT expression
ALTER [ COLUMN ] column DROP DEFAULT
ALTER [ COLUMN ] column { SET | DROP } NOT NULL
ALTER [ COLUMN ] column SET STATISTICS integer
ALTER [ COLUMN ] column SET ( attribute_option = value [, ... ] )
ALTER [ COLUMN ] column RESET ( attribute_option [, ... ] )
ALTER [ COLUMN ] column SET STORAGE { PLAIN | EXTERNAL | EXTENDED | MAIN }
ADD table_constraint [ NOT VALID ]
ADD table_constraint_using_index
VALIDATE CONSTRAINT constraint_name
DROP CONSTRAINT [ IF EXISTS ] constraint_name [ RESTRICT | CASCADE ]
DISABLE TRIGGER [ trigger_name | ALL | USER ]
ENABLE TRIGGER [ trigger_name | ALL | USER ]
ENABLE REPLICA TRIGGER trigger_name
ENABLE ALWAYS TRIGGER trigger_name
DISABLE RULE rewrite_rule_name
ENABLE RULE rewrite_rule_name
ENABLE REPLICA RULE rewrite_rule_name
ENABLE ALWAYS RULE rewrite_rule_name
CLUSTER ON index_name
SET WITHOUT CLUSTER
SET WITH OIDS
SET WITHOUT OIDS
SET ( storage_parameter = value [, ... ] )
RESET ( storage_parameter [, ... ] )

```

Missing section in ALTER TABLE synopsis



## Creating the patch

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- PostgreSQL `git clone`
- Building from source code
- Building documentation from source code
- Copy/Paste missing section from `CREATE TABLE` to `ALTER TABLE`
- Re-building documentation from source code

```
x-INT ~/postgresql/postgresql/doc/src [:ad25a6b|✓]
11:47 $ grep "table_constraint_using_index" -R sgml/
sgml/ref/alter_table.sgml:      ADD <replaceable class="parameter">table_constraint_using_index</replaceable>
sgml/ref/alter_table.sgml:<phrase>and <replaceable class="parameter">table_constraint_using_index</replaceable> is:</phrase>
sgml/ref/alter_table.sgml:      <term><literal>ADD <replaceable class="parameter">table_constraint_using_index</replaceable><
sgml/postgres-US.fo:      ADD <fo:inline font-style="italic" font-family="monospace">table_constraint_using_index</fo:inline>
sgml/postgres-US.fo:<fo:inline>and <fo:inline font-style="italic" font-family="monospace">table_constraint_using_index</fo:
sgml/postgres-US.fo:      </fo:block></fo:block><fo:block id="idm45884924494432" keep-together.within-column="always" keep-w
ace-before.minimum="0.8em" space-before.maximum="1.2em"><fo:inline><fo:inline font-family="monospace">ADD <fo:inline font-s
index</fo:inline></fo:inline></fo:inline></fo:block><fo:block margin-left="0.25in"><fo:block space-after.optimum="1em" spac
ore.optimum="1em" space-before.minimum="0.8em" space-before.maximum="1.2em">      This form adds a new <fo:inline font-fami
ily="monospace">UNIQUE</fo:inline>
sgml/html/sql-altertable.html:      ADD <em class="replaceable"><code>table_constraint_using_index</code></em>
sgml/html/sql-altertable.html:<span class="phrase">and <em class="replaceable"><code>table_constraint_using_index</code></e
sgml/html/sql-altertable.html:      </p></dd><dt><span class="term"><code class="literal">ADD <em class="replaceable"><code>
d><p>
sgml/man7/ALTER_TABLE.7:      ADD \fItable_constraint_using_index\fR
sgml/man7/ALTER_TABLE.7:and \fItable_constraint_using_index\fR is:
sgml/man7/ALTER_TABLE.7:ADD \fItable_constraint_using_index\fR
sgml/postgres-A4.fo:      ADD <fo:inline font-style="italic" font-family="monospace">table_constraint_using_index</fo:inline>
sgml/postgres-A4.fo:<fo:inline>and <fo:inline font-style="italic" font-family="monospace">table_constraint_using_index</fo:
sgml/postgres-A4.fo:      </fo:block></fo:block><fo:block id="idm45329369395536" keep-together.within-column="always" keep-w
ace-before.minimum="0.8em" space-before.maximum="1.2em"><fo:inline><fo:inline font-family="monospace">ADD <fo:inline font-s
index</fo:inline></fo:inline></fo:inline></fo:block><fo:block margin-left="0.25in"><fo:block space-after.optimum="1em" spac
ore.optimum="1em" space-before.minimum="0.8em" space-before.maximum="1.2em">      This form adds a new <fo:inline font-fami
ily="monospace">UNIQUE</fo:inline>
sgml/postgres.xml:>table_constraint_using_index</replaceable>
sgml/postgres.xml:>table_constraint_using_index</replaceable> is:</phrase>
sgml/postgres.xml:>table_constraint_using_index</replaceable></literal></term><listitem
```

## Finding where to make your modifications

---

- Use grep
- Ask around!
- Think (a little)

🔍 <https://www.postgresql.org/docs/current/static/sql-altertable.html>

```
✓ ~/postgresql/postgresql/doc/src/sgml/ref [ :ad25a6b|✓ ]  
12:19 $ ll alter_table*  
-rw-rw-r-- 1 laetitia laetitia 63439 mai 28 11:39 alter_table.sgml  
-rw-rw-r-- 1 laetitia laetitia 4046 déc. 4 15:58 alter_tablespace.sgml
```

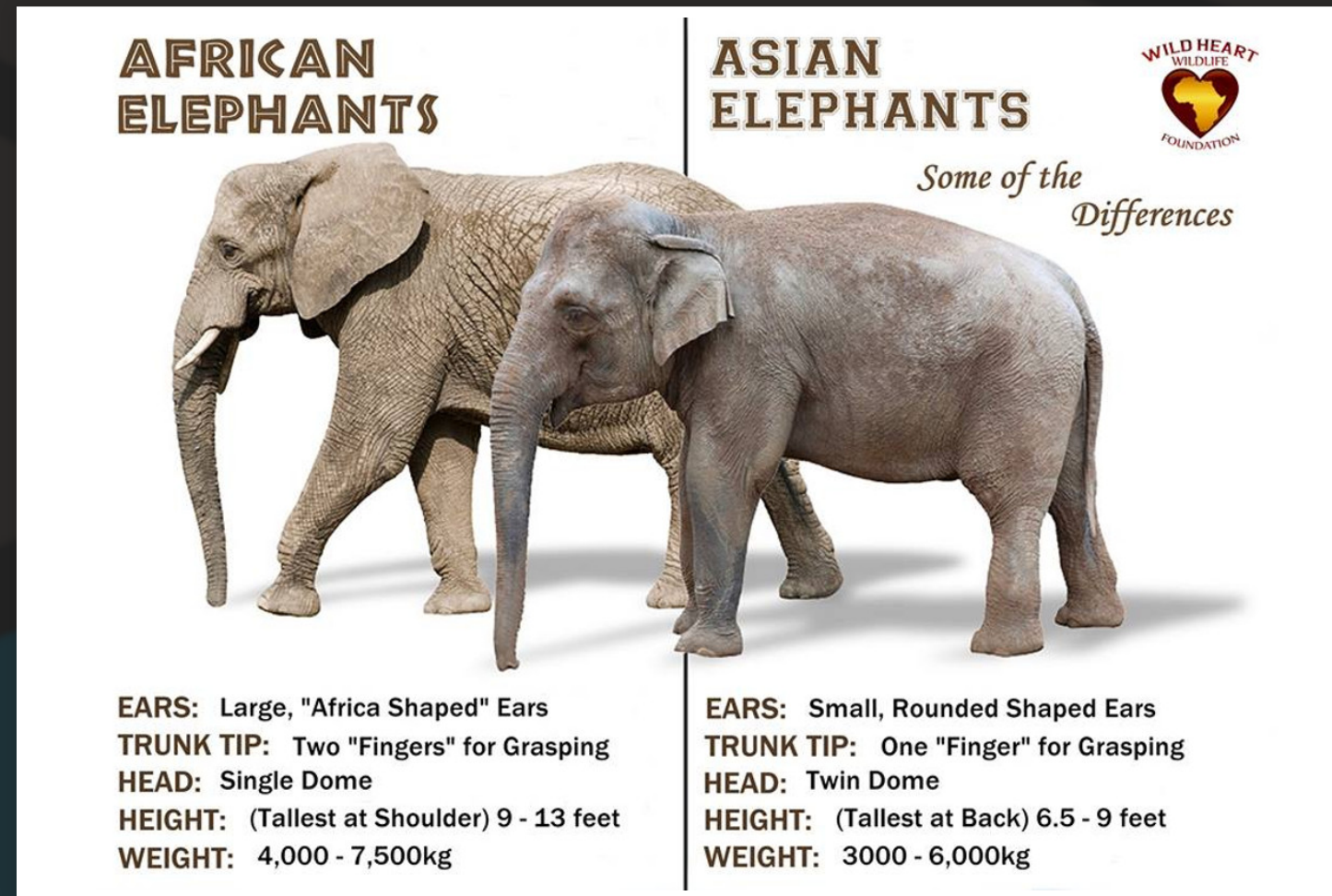
Finding what you're looking for in directories

```

88 <phrase>and <replaceable class="parameter">table_constraint</replaceable> is:</phrase>
89
90 [ CONSTRAINT <replaceable class="parameter">constraint_name</replaceable> ]
91 { CHECK ( <replaceable class="parameter">expression</replaceable> ) [ NO INHERIT ] |
92  UNIQUE ( <replaceable class="parameter">column_name</replaceable> [, ... ] ) <replace
able class="parameter">index_parameters</replaceable> |
93  PRIMARY KEY ( <replaceable class="parameter">column_name</replaceable> [, ... ] ) <re
placeable class="parameter">index_parameters</replaceable> |
94  EXCLUDE [ USING <replaceable class="parameter">index_method</replaceable> ] ( <replac
eable class="parameter">exclude_element</replaceable> WITH <replaceable class="paramete
r">operator</replaceable> [, ... ] ) <replaceable class="parameter">index_parameters</r
eplaceable> [ WHERE ( <replaceable class="parameter">predicate</replaceable> ) ] |
95  FOREIGN KEY ( <replaceable class="parameter">column_name</replaceable> [, ... ] ) REF
ERENCES <replaceable class="parameter">reftable</replaceable> [ ( <replaceable class="p
arameter">refcolumn</replaceable> [, ... ] ) ]
96    [ MATCH FULL | MATCH PARTIAL | MATCH SIMPLE ] [ ON DELETE <replaceable class="param
eter">action</replaceable> ] [ ON UPDATE <replaceable class="parameter">action</replace
able> ] }
97 [ DEFERRABLE | NOT DEFERRABLE ] [ INITIALLY DEFERRED | INITIALLY IMMEDIATE ]
98
99 <phrase>and <replaceable class="parameter">table_constraint_using_index</replaceable> i
s:</phrase>
100

```

A simple copy/paste



## git diff

---

- With context
- Use the wiki [Creating clean patches](#) page
- [Format your git diff output](#)

But sometimes, even the best men don't follow instructions...

```
On Fri, Aug 3, 2012 at 2:56 AM, Qi Huang <huangqiyx(at)outlook(dot)com> wrote:  
> Hi, hackers  
> I was exporting my project to a patch file. As the patch review  
> requires, the patch needs to be in context diff format  
> (http://wiki.postgresql.org/wiki/Reviewing\_a\_Patch). But the git diff  
> exports in a format similar to unified format. What is everyone doing with  
> patching currently? Is there any standard way?
```

When I want a context diff, I just do:

```
git diff | filterdiff --format=context
```

--

Robert Haas

EnterpriseDB: <http://www.enterprisedb.com>

The Enterprise PostgreSQL Company



git diff without context to the left,  
git diff with context to the right

```

diff --git a/doc/src/sgml/ref/alter_table.sgml
index 7bcf242..26eda7e 100644
--- a/doc/src/sgml/ref/alter_table.sgml
+++ b/doc/src/sgml/ref/alter_table.sgml
@@ -96,6 +96,17 @@ ALTER TABLE [ IF EXISTS ] <
    [ MATCH FULL | MATCH PARTIAL | MATCH SIMP
    [ DEFERRABLE | NOT DEFERRABLE ] [ INITIALLY D
+<phrase>and <replaceable class="parameter">ta
+
+[ CONSTRAINT <replaceable class="parameter">c
+{ CHECK ( <replaceable class="parameter">expr
+ UNIQUE ( <replaceable class="parameter">col
+ PRIMARY KEY ( <replaceable class="parameter
+ EXCLUDE [ USING <replaceable class="paramet
+ FOREIGN KEY ( <replaceable class="parameter
+   [ MATCH FULL | MATCH PARTIAL | MATCH SIMP
+[ DEFERRABLE | NOT DEFERRABLE ] [ INITIALLY D
+
+<phrase>and <replaceable class="parameter">ta
+
+   [ CONSTRAINT <replaceable class="paramete

diff --git a/doc/src/sgml/ref/alter_table.sgml
index 7bcf242..26eda7e 100644
--- b/doc/src/sgml/ref/alter_table.sgml
+*****
+*** 96,101 **** ALTER TABLE [ IF EXISTS ] <rep
--- 96,112 ----
    [ MATCH FULL | MATCH PARTIAL | MATCH SIM
    [ DEFERRABLE | NOT DEFERRABLE ] [ INITIALLY
+ <phrase>and <replaceable class="parameter">t
+
+[ CONSTRAINT <replaceable class="parameter">
+{ CHECK ( <replaceable class="parameter">exp
+ UNIQUE ( <replaceable class="parameter">co
+ PRIMARY KEY ( <replaceable class="paramete
+ EXCLUDE [ USING <replaceable class="parame
+ FOREIGN KEY ( <replaceable class="paramete
+   [ MATCH FULL | MATCH PARTIAL | MATCH SIM
+[ DEFERRABLE | NOT DEFERRABLE ] [ INITIALLY
+
+<phrase>and <replaceable class="parameter">t
+
+   [ CONSTRAINT <replaceable class="paramet

```

```
12:27 $ git diff | filterdiff  
\--format=context > \  
../patch/adding_table_constraint\  
description_in ALTER_TABLE synopsis_v1.patch
```

## My submission

Hi,

In documentation, I've found that `table_constraint` is used in the ALTER TABLE synopsis but that definition of `table_constraint` is missing, so I submitted bug #14873.

I found the `table_constraint` definition in the CREATE TABLE synopsis and I just copied/pasted it on the ALTER TABLE synopsis.

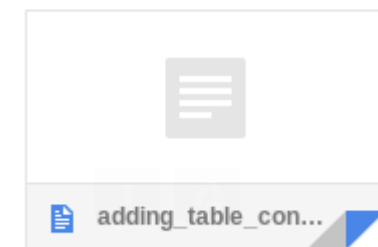
The patch should apply to MASTER. I build and tested it successfully on my computer.

There shouldn't be any platform-specific content.

You will find enclosed my patch. I tried my best to follow instructions on how to submit a patch.

Regards,

Lætitia



Use the [Submitting a patch](#) Wiki page

## The result

Thanks, this looks pretty reasonable, but did you happen to look for any other keywords in the ALTER TABLE that should really be in ALTER TABLE also?

I'm specifically looking at, at least, `partition_bound_spec`. Maybe you could propose an updated patch which addresses that also, and any other cases you find?

Thanks again!

## Patch corrected

Ah, yes. I remember having left out `partition_bound_spec` simply because I thought it was kind of how it was supposed to be done, seeing that neither `column_constraint` and `table_constraint` were expanded in the ALTER TABLE's synopsis.

It seems that there are indeed a couple of other things that need to be brought over to ALTER TABLE synopsis including `partition_bound_spec`. [9f295c08f877 \[1\]](#) added `table_constraint`, but missed to add the description of `index_parameters` and `exclude_element` which are referenced therein.

Attached find updated version of the Lætitia's patch.

Thanks,  
Amit

## Commit fest

<b>ALTER TABLE</b> Missing column_constraint explanation	Needs review	Lætitia AVROT (arkhena)	Amit Langote (amitlan), Vik Fearing (xocolatl)	sfrost
---	--------------	----------------------------	--	--------

## Oh no!

Here's an update to move the new stuff to the correct side of the closing "`</synopsis>`". Builds for me, and the typesetting looks OK. I'm not sure why the preexisting bogo-productions have inconsistent indentation levels (looking at `table_constraint_using_index`) but that's not this patch's fault.

## And another section was missing!

Thanks for fixing that.

I noticed that `partition_bound_spec` in the patch is missing hash partition bound syntax that was added after the original patch was written. Fixed in the attached.

Thanks,  
Amit



It's ready!

<b>ALTER TABLE</b> Missing column_constraint explanation	Ready for Committer	Lætitia AVROT (arkhena)	Amit Langote (amitlan), Vik Fearing (xocolatl)	sfrost
---	---------------------	----------------------------	---	--------

And it's committed!

<b>ALTER TABLE</b> Missing column_constraint explanation	<b>Committed</b>	Lætitia AVROT (arkhena)	Amit Langote (amitlan), Vik Fearing (xocolatl)	sfrost
---	------------------	----------------------------	--	--------

... Now I can die without regret!

### Improve ALTER TABLE synopsis master

```
author      Stephen Frost <sfrost@snowman.net>
            Fri, 2 Feb 2018 11:30:04 +0100 (05:30 -0500)
committer   Stephen Frost <sfrost@snowman.net>
            Fri, 2 Feb 2018 11:30:04 +0100 (05:30 -0500)
commit      a2a22057617dc84b500f85938947c125183f1289
tree        a73675e821780ce2e363eba48b9449466590bd62   tree | snapshot
parent      ad25a6b1f25baf09c869c903c9c8e26d390875f5   commit | diff
```

#### Improve ALTER TABLE synopsis

Add into the ALTER TABLE synopsis the definition of `partition_bound_spec`, `column_constraint`, `index_parameters` and `exclude_element`.

Initial patch by Latitia Avrot, with further improvements by Amit Langote and Thomas Munro.



## What I learnt

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- Anyone can help (even me!)
- You can ask for help, you will find answers
- It's OK to have multiple refactoring to do (Well, it's quite always the case)

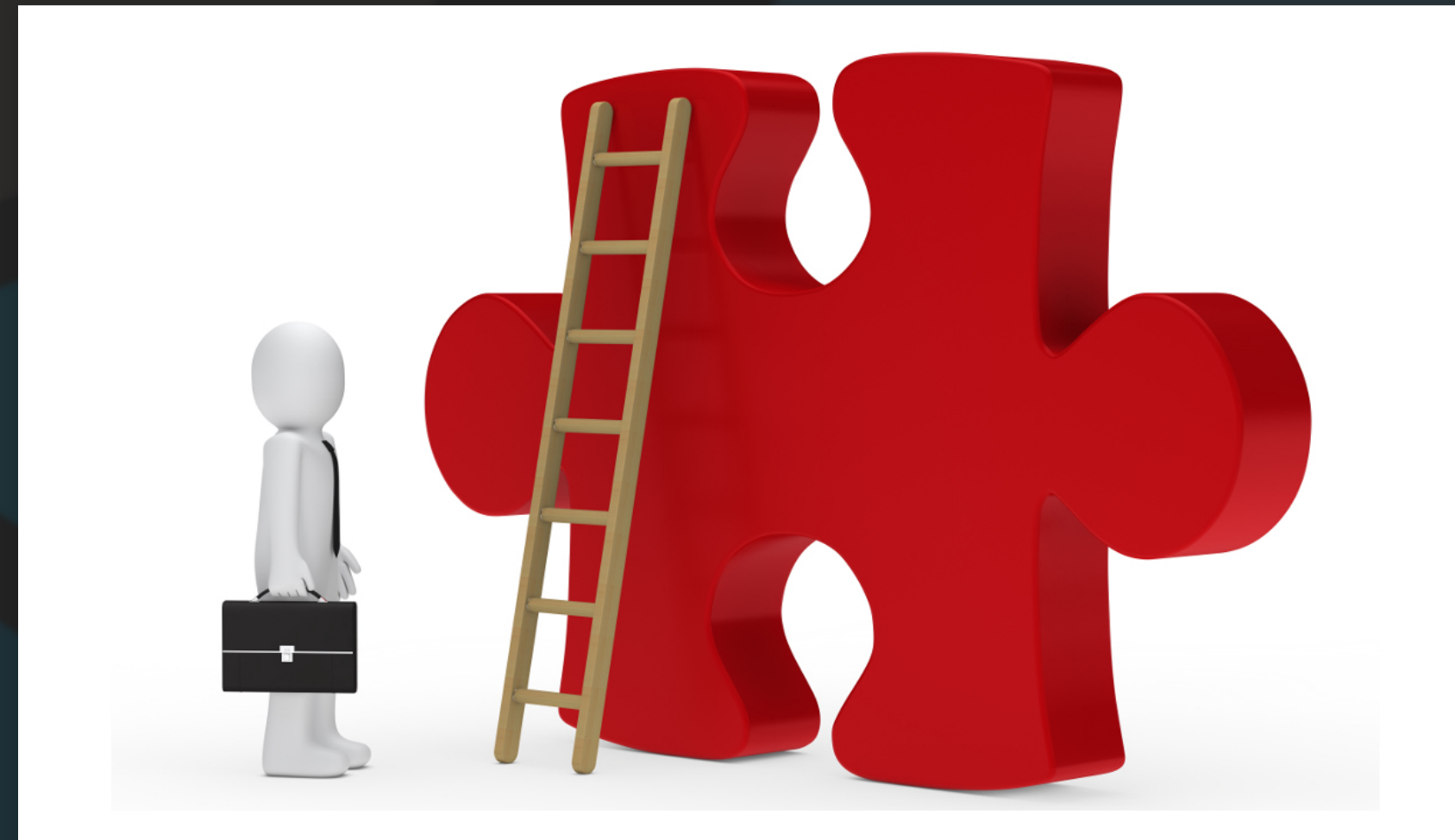


## What next ?

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- Correcting some spelling errors in french translation
- Studying the code
- Observing reviewing in January Commit fest
- Proposed conf talks (and got accepted each time for now)

# HOW YOU CAN HELP





## Simple contributor

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- uses PostgreSQL
- shares your experience
- answers other users' questions



## Great Contributor

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- Creates/helps organizing user group/Meetup
- Creates/helps organizing event
- Invests time/money in PostgreSQL Associations





## Super Contributor

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- Reports bugs
- Creates patches
- Reviews patches

# CONCLUSION



**KEEP  
CALM  
AND  
LISTEN TO THE  
CONCLUSION**



It's all about you

---

- You're already a level 1 contributor
- So, next step ?





Please join us!

# QUESTIONS?



Special thanks to Dimitri, Greg, Vik, Robert and Alvaro for your patience and time

Thanks to Frits Ahlefeldt, Freepik, Grzm, Alvaro Herrera, Pixabay and Xkcd.com for illustrations and photos