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Use a database

The add-on marketplace has a large number of data stores, from Redis and MongoDB providers, to Postgres and MySQL. In this step, you will learn about the free Heroku Postgres add-on that is provisioned automatically on all Rails app deploys.

A database is an add-on, and so you can find out more about the database provisioned for your app using the `heroku addons` command in the CLI:

```
> heroku addons
=== polar-inlet-4930 Configured Add-ons
heroku-postgresql:hobby-dev  HEROKU_POSTGRESQL_BROWN
papertrail:choklad
```

Listing the config vars for your app will display the URL that your app is using to connect to the database, `DATABASE_URL`:

```
> heroku config
=== polar-inlet-4930 Config Vars
DATABASE_URL:      postgres://xx:yyy@host:5432/d8slm9t7b5mjnd
HEROKU_POSTGRESQL_BROWN_URL: postgres://xx:yyy@host:5432/d8slm9t7b5mjnd
...
```

Heroku also provides a `heroku pg` command that shows a lot more:

```
> heroku pg
=== HEROKU_POSTGRESQL_BROWN_URL (DATABASE_URL)
Plan:      Hobby-dev
Status:    Available
Connections: 0
PG Version: 9.3.3
Created:    2014-07-07 11:30 UTC
Data Size: 6.6 MB
Tables:    2
Rows:      1/10000 (In compliance)
Fork/Follow: Unsupported
Rollback:   Unsupported
```

This indicates I have a hobby database (free), running Postgres 9.3.3, with a single row of data.

The example app you deployed already has database functionality. It has a controller and database model for widgets, which you should be able to reach by visiting your app's URL and appending `/widgets`.

If you visit the URL, you'll see an error page appear. View the error message by using `heroku logs`. In Papertrail, you'll see something like this:

```
2014-07-08T14:52:37.884178+00:00 app[web.1]: Started GET "/widgets" for 94.174.204.242 at 2014-07-08 14:52:37 +0000
2014-07-08T14:52:38.162312+00:00 heroku[router]: at=info method=GET path="/widgets" host=fox828228.herokuapp.com request_id=3755bb46-4de2-4434
2014-07-08T14:52:38.078295+00:00 app[web.1]: Processing by WidgetsController#index as HTML
....
2014-07-08T14:52:38.146062+00:00 app[web.1]: PG::UndefinedTable: ERROR: relation "widgets" does not exist
```

This indicates that while we could connect to the database, the necessary table wasn't found. In Rails, you can fix that by running `rake db:migrate`. To execute this command on Heroku, run it in a one-off dyno like this:

```
> heroku run rake db:migrate
Running `rake db:migrate` attached to terminal... up, run.3559
Migrating to CreateWidgets (20140707111715)
== 20140707111715 CreateWidgets: migrating =====
-- create_table(:widgets)
   -> 0.0244s
== 20140707111715 CreateWidgets: migrated (0.0247s) =====
```

Just like your web process type runs in a dyno, so too did this rake command. Heroku boots a new dyno, adds in your prepared app, and then executes the command in that context - and afterwards removes the dyno.

Now if you visit the `/widgets` page of your app again, you'll be able to list and create Widget records.

You can also interact directly with the database if you have Postgres installed locally. For example, here's how to connect to the database using `psql` and execute a query:

```
> heroku pg:psql

d8slm9t7b5mjnd=> select * from widgets;
 id |  name  | description | stock |      created_at      |      updated_at
-----+-----+-----+-----+-----+-----
  1 | My Widget | It's amazing |   100 | 2014-07-08 15:05:13.330566 | 2014-07-08 15:05:13.330566
(1 row)
```

Read more about Heroku PostgreSQL (<https://devcenter.heroku.com/articles/heroku-postgresql>).

A similar technique can be used to install MongoDB or Redis add-ons (<https://elements.heroku.com/addons/#data-stores>).

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