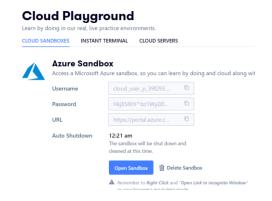
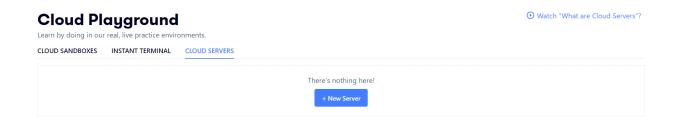
I'm pretty sure many of you have successfully completed the Python on ACG course with lots of practice and lots of love. I'm confident it wouldn't hurt to re-quote some important parts of the Python course from the perspective of a student like me. I guess there are crucial places for cloud engineering, and it would not be a waste of time to repeat it and it would be useful to focus on it again.

Because Keith's videos are from 5 years ago, some versions are not compatible with each other. Although it updated the db\_setup.sh file 3 years ago, I have seen in my experience that there is a conflict between PostgreSQL versions and Linux servers. If you want to see the image that Keith SQL is processing on your own computer now, you could fulfill this desire by using the commands I have given below.

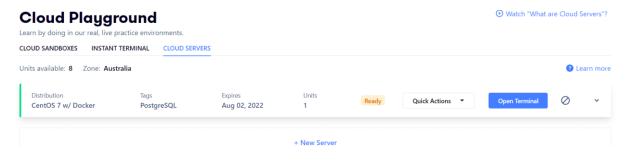
First, let's start our Azure Sandbox from the Cloud Playground page[link].



You could then use AWS and Google Cloud for practice.



After Open Sandbox, we first create a server for PostgreSQL. We choose Distribution CentOS 7 w/ Docker.



Open the terminal of the server we created and enter the following commands. And you will need to update your temp\_password. This password is for user sudo.

```
d394227ea41c login: cloud_user
Password:
You are required to change your password immediately (root enforced)
Changing password for cloud_user.
(current) UNIX password:
New password:
Retype new password:
Last failed login: Tue Jul 19 14:24:15 UTC 2022 from localhost on pts/0
There was 1 failed login attempt since the last successful login.
Last login: Tue Jun 14 20:18:37 on
[cloud_user@d394227ea41c ~]$ ls
Desktop my-login.pp
[cloud_user@d394227ea41c ~]$ [
```

After reaching the terminal page, we will install the database on this server. The installation process continues as follows:

#### download database ->>

curl -o db\_setup.sh https://raw.githubusercontent.com/linuxacademy/content-python3-sysadmin/master/helpers/db\_setup.sh

#### then ->>

chmod +x db\_setup.sh

./db\_setup.sh

Entering your sudo password then the db\_setup.sh file will automatically make the necessary settings for us. <u>Here is a good example of automation</u>. As a cloud engineer, you will be able to create files in this way.

#### This may take some time.

```
[cloud_user@d394227eadic ~]$ chmod +x db_setup.sh
[cloud_user@d394227eadic ~]$ /db_setup.sh
Updating and installing Docker
[sudo] password for cloud_user:
sudo: timed out reading password
[sudo] password for cloud_user:
Loaded plugins: fastestmirror

Determining fastest mirrors

epel/x86_64/metallink | 4.3 k8 08:08:08

* base: download.cf.centos.org

* epel: epel.mirror.digitalpacific.com.au

* extras: download.cf.centos.org

* uux-dextop: mirror.li.nux.ro

* updates: download.cf.centos.org

base

epel
extras

nux-dextop

updates

(1/9): epel/x86_64/updateinfo
(2/9): epel/x86_64/primary_db
(3/9): base/7/x86_64/primary_db
(6/9): suse/7/x86_64/primary_db
(6/9): nux-dextop, primary_db
(1.8 m8 00:00:06)
```

## Still going on

# We enter sudo password again.

```
Verifying : xz-libs-5.2.2-1.e17.x86_64

Verifying : python-libs-2.7.5-9e.e17.x86_64

Verifying : samba-common-libs-4.10.16-18.e17_9.x86_64

Verifying : semba-common-libs-4.10.16-18.e17_9.x86_64

Verifying : semba-libs-4.10.16-18.e17_9.x86_64

Verifying : python-perf-3.10.0-1160.66.1.e17.x86_64

Verifying : python-perf-3.10.0-1160.42.2.e17

Installed:
    kernel.x86_64 0:3.10.0-1160.71.1.e17

Updated:
    control-center-x86_64 1:3.28.1-8.e17_9.1

    kernel-lools.x86_64 0:3.10.0-1160.71.1.e17

kernel-tools.x86_64 0:3.10.0-119.e17_9

python-libs.x86_64 0:3.10.0-119.e17_9

python-libs.x86_64 0:3.10.0-119.e17_9

samba-common.noarch 0:4.10.16-19.e17_9

samba-common.noarch 0:4.10.16-19.e17_9

zenity.x86_64 0:3.28.1-2.e17_9

Completel

[sudo] password for cloud_user: []
```

The rpm file is automatically installing.

```
Transaction Summary

Install 2 Packages (+5 Dependent packages)
Upgrade 1 Package

Total download size: 97 M

Downloading packages:

Delta RPMs disabled because /usr/bin/applydeltarpm not installed.

(2/8): containerd.io-1.6.6-3.1.e17.x86_64.rpm

(3/8): docker-ce-10.1.17-3.e17.x86_64.rpm

(3/8): docker-ce-10.1.17-3.e17.x86_64.rpm

(3/8): docker-ce-nothers-extras-2.0.1.0.17-3.e17.x86_64.rpm

(3/8): fuse-overlayfs-0.7.2-6.217.8.x86_64.rpm

(3/8): fuse-overlayfs-0.7.2-6.217.8.x86_64.rpm

(3/8): slirp4netns-0.4.3-4.e17.8.x86_64.rpm

(3/8): slirp4netns-0.4.3-4.e17.8.x86_64.rpm

(3/8): slirp4netns-0.4.3-4.e17.8.x86_64.rpm

(3/8): slirp4netns-0.4.3-4.e17.8.x86_64.rpm

(3/8): slirp4netns-0.4.3-4.e17.8.x86_64.rpm

(3/8): slirp4netns-0.4.3-4.e17.8.x86_64

(3/9): slirp4netns-0.4.3-4.e17.8.x86_64

(3
```

When you see this screen, you need to create a user and password for the database. The user and password we will use here will be used to access the database from the Workstation server we will create shortly. Making this username and password different from sudo's will avoid confusion.

We can make it as Keith did.

Postgres username: demo

Password: password

```
Complete!
Starting and enabling Docker
Configure database user
Postgres user name: demo
Postgres user password: [
```

Automation starts again

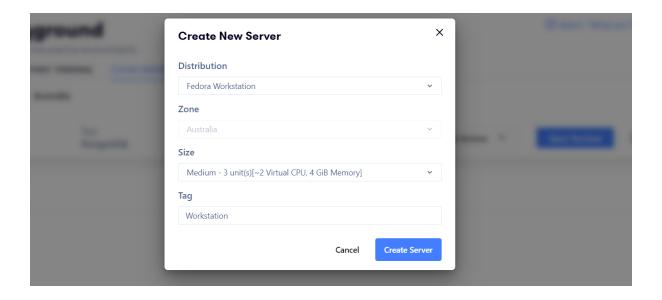
Finally, our sample database has been completed by installing it on the Linux server we have created via Azure Sandbox

```
INSERT 0 1
```

Then ->> exit from PostgreSQL server

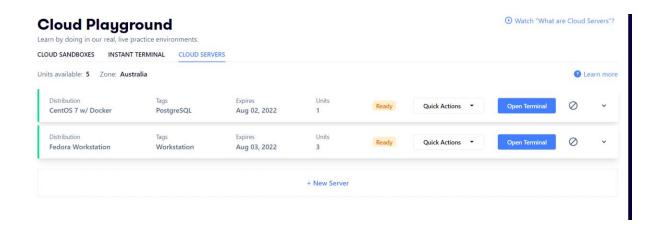
```
INSERT 0 1
```

Now we could go to azure sandbox cloud server again and set up a server for workstation. I made the sizes randomly because of it is tutorial.



Here I chose fedora, another rpm distributor, because they made it a workstation functionally on the Azure Sandbox, and it installed PostgreSQL and plugins with a very high performance and without any problems.

Our Workstation server installation on Azure sandbox is completed



We need to update the password as in the server we set up for the database. We need to update password that every server we create it. I put the same sudo password, because it is tutorial.

```
d394227ea42c login: cloud_user
Password:
You are required to change your password immediately (administrator enforced).
Current password:
New password:
Retype new password:
Last failed login: Tue Jul 19 15:36:31 UTC 2022 from localhost on pts/0
There was 1 failed login attempt since the last successful login.
Last login: Tue Jun 14 15:57:57 on
[cloud_user@d1394227ea42c ~]$ | S
Desktop Documents Downloads Music Pictures Public Templates Videos vncserver@.service
[cloud_user@d394227ea42c ~]$ |
```

we need to install PostgreSQL on this server. We need to apply the following commands respectively.

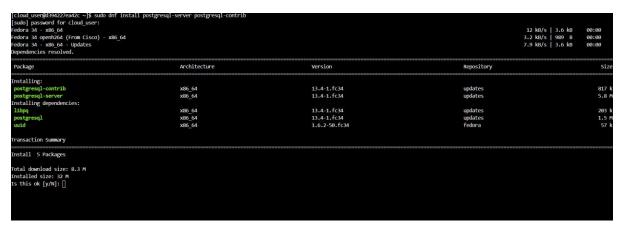
#### [link]

# install PostgreSQL on fedora ->>

sudo dnf install postgresql-server postgresql-contrib

```
d394227ea42c login: cloud_user
Password:
Last login: Tue Jul 19 15:47:17 from localhost
[cloud_user@d394227ea42c ~]$ Is
Desktop Documents Downloads Music Pictures Public Templates Videos vncserver@.service
[cloud_user@d394227ea42c ~]$ pwd
/home/cloud_user@d394227ea42c ~]$ pwd
[cloud_user@d394227ea42c ~]$ sudo dnf install postgresql-server postgresql-contrib]
```

## Tap in Y



It is completed then we could switch to second command

```
(4/9); unid-1.6.7-96.fc34.866.64.rpm
(27); postgreq=0-1.34.1-fc34.866.64.rpm
(27); postgreq=0-1.34.1-fc34.866.64.rpm
(27); postgreq=0-1.34.1-fc34.866.64.rpm
(27); postgreq=0-1.34.1-fc34.866.64.rpm
(27); postgreq=0-contrib-13.4.1-fc34.866.64.rpm
(28); postgreq=0-contrib-13.4.1-fc34.866.64
(28); postgreq=0-contrib-13.4.1-fc34.866.64
(28); postgreq=0-contrib-13.4.1-fc34.866.64
(29); postgreq=0-contrib-13.4.1-fc34.866.64
(20); postgre
```

# sudo systemctl enable postgresql

```
[cloud_user@d394227ea42c ~]$ sudo systemctl enable postgresql
Created symlink /etc/systemd/system/multi-user.target.wants/postgresql.service → /usr/lib/systemd/system/postgresql.service.
```

# sudo postgresql-setup --initdb --unit postgresql

```
[cloud_user@d394227ea42c ~]$ sudo postgresql-setup --initdb --unit postgresql
* Initializing database in '/var/lib/pgsql/data'
* Initialized, logs are in /var/lib/pgsql/initdb_postgresql.log
[cloud_user@d394227ea42c ~]$ [
```

## sudo systemctl start postgresal

```
[cloud_user@d394227ea42c ~]$ sudo systemctl start postgresql
[cloud_user@d394227ea42c ~]$ [
```

From here, we can connect to our database server from the workstation. We will use the username "demo" and the password "password" that we specified while creating the database server.

connect to PostgreSQL server(database) from fedora34-workstaion server and play it using by SQL. Public IPv4(dynamic) will swap every time you start it, username, and password(static)

# **IP Address**

Public IPv4 3.25.204.223

psql postgres://demo:password@ 3.25.204.223:80/sample -c "SELECT \* FROM employees;"

```
[cloud_user@d394227ea42c ~]$ sudo systemctl start postgresql
[cloud_user@d394227ea42c ~]$ psql postgres://demo:password@ 3.25.204.223:80/sample -c "SELECT * FROM employees;"]
```

Here we can play on the database with simple or complex SQL commands. The exercises you will do with SQL will help you a lot in your python development. I did some practice with sql on the database for fun, it will be beneficial for you to do it too.

[cloud	oud user@d394227ea42c ~]\$ psql postgres://demo:password@3.25.204.223:80/sample -c "SELECT * FROM employees;"					
id	first_name	last_name	email	gender	favorite_color	
	Lauralee	Morkham	⊦ l lmorkham0@example.com	   Female	#878922	
1	Hillery	Langland	hlangland1@example.com	Female   Male	#878922 #6fd569	
2	,		rkroger2@example.com	Male   Male	#670569 #d9c547	
3	Regan	Kroger Treasaden	gtreasaden3@example.com	Male		
4	George				#d5e6c2	
5	Raddy	Curley	rcurley4@example.com	Male	#83974a	
6	Waylen	Tott	wtott5@example.com	Male	#90532b	
7	Filmore	Chartre	fchartre6@example.com	Male	#6a1fb5	
8	Ulberto	Pimme	upimme7@example.com	Male	#7560c1	
9	Sigfried	Lowre	slowre8@example.com	Male	#37c45b	
10	Edwina	Henrichsen	ehenrichsen9@example.com	Female	#00ef5c	
11	Emmeline	Harty	ehartya@example.com	Female	#004399	
12	Nolan	Cansdall	ncansdallb@example.com	Male	#fff920	
13	Chrystel	Wickey	cwickeyc@example.com	Female	#33b833	
14	Ezequiel	McCart	emccartd@example.com	Male	#0437d5	
15	Diarmid	Main	dmaine@example.com	Male	#f3f435	
16	Jessamine	Jansik	jjansikf@example.com	Female	#db3da9	
17	Linell	Brimicombe	lbrimicombeg@example.com	Female	#68e029	
18	Faber	Netting	fnettingh@example.com	Male	#9c772e	
19	Roz	Caple	rcaplei@example.com	Female	#cc5cb2	
20	Caleb	Milch	cmilchj@example.com	Male	#8f1c39	
21	Krystalle	Gibling	kgiblingk@example.com	Female	#78254d	
22	Felipa	Pardy	fpardyl@example.com	Female	#b8b32e	
23	Krystalle	Inkster	kinksterm@example.com	Female	#70144a	
24	Loralyn	Hoofe	lhoofen@example.com	Female	#da0b31	
25	Mirella	Sandars	msandarso@example.com	Female	#27a0ac	
26	Stacee	Megahey	smegaheyp@example.com	Male	#8bcb37	
27	Benetta	Olivelli	bolivelliq@example.com	Female	#0940f9	
28	Ericka	Waylen	ewaylenr@example.com	Female	#3696d7	
29	Virgie	Meiklam	vmeiklams@example.com	Female	#34fc78	
30	Felecia	Tow	ftowt@example.com	Female	#bfd7db	
31	Fanya	Elmhirst	felmhirstu@example.com	Female		
32	Rafi	Juschka	rjuschkav@example.com	Male	#e3ab10	
33	Ruggiero	Buttriss	rbuttrissw@example.com	Male	#7ea766	
34	Spenser	Shepton	ssheptonx@example.com	Male	#ca1ef4	
35	Leann	Gooch	lgoochy@example.com	Female	#b96ca9	
33			-G	- Ciliare		

psql postgres://demo:password@3.25.204.223:80/sample -c "SELECT gender FROM employees WHERE gender = 'Female';"

```
[cloud_user@t394272*cat2c ~ | $
psql_posigress*//demorpassword@3.25.204.223:80/sample -c "SELECT gender FROM
employees WHER gender = "Female";"
gender
Fomale
```

 $psql\ postgres://demo:password@3.25.204.223:80/sample\ -c\ "SELECT\ *\ FROM\ employees\ WHERE\ email\ LIKE\ '%tt%';"$ 

[cloud_user@d394227ea42c ~]\$ psql postgres://demo:password@3.25.204.223:80/sample -c "SELECT * FROM employees WHERE email LIKE '%tt%':"							
id	first_name	last_name	email	gender	favorite_color		
6	 Waylen	+   Tott	+   wtott5@example.com	+   Male	#90532b		
18	Faber	Netting	fnettingh@example.com	Male	#9c772e		
33	Ruggiero	Buttriss	rbuttrissw@example.com	Male	#7ea766		
98	Beverlee	Butting	bbutting2p@example.com	Female	#b9bae1		
120	Darci	Kettles	dkettles3b@example.com	Female	#ea1608		
142	Desirae	Muffett	dmuffett3x@example.com	Female	#d77540		
164	Christabel	Lovett	clovett4j@example.com	Female	#5fc98d		
170	Joellyn	Pettisall	jpettisall4p@example.com	Female	#8b839d		
190	Carma	Cottrell	ccottrell59@example.com	Female	#962cfb		
227	Amby	Checketts	achecketts6a@example.com	Male	#de32e4		
245	Asher	Fettis	afettis6s@example.com	Male	#cca6be		
258	Lenette	Betteriss	lbetteriss75@example.com	Female	#9bb973		
259	Bree	Muscott	bmuscott76@example.com	Female	#7b7b2c		
264	Neall	Knappett	nknappett7b@example.com	Male	#5c5489		
268	Alfy	Tottem	atottem7f@example.com	Female	#667637		
277	Uta	Attawell	uattawell7o@example.com	Female	#426213		
282	Mikkel	Beatty	mbeatty7t@example.com	Male	#9acd67		

psql postgres://demo:password@3.25.204.223:80/sample -c "SELECT \* FROM EMPLOYEES WHERE first name NOT LIKE '%a%' AND id BETWEEN 200 AND 220;"

# \*sql-SQL

885	Cynthia	Lynnitt	clynnittok@example.co	m	Female	e   #6c2999				
926	Bertram	Waskett	bwaskettpp@example.co	m į	Male	#0f139f				
963	Staford	Romanetti	sromanettiqq@example.	com	Male	#ffea11				
994	Ragnar	Brewitt	rbrewittrl@example.com	m į	Male	#1478c3				
(59 rd	59 rows)									
[cloud	d_user@d394227	'ea42c ~]\$ psq	l postgres://demo:passwo	rd@3.25.2	04.223:	3:80/sample -c "SELECT * FROM EMPLOYEES WHERE first_name NOT LIKE '%2%' AND id BETWEEN 200 AND 220;"				
id	first_name	last_name	email	gender	favor:	orite_color				
		++		+	+					
200	Meridel	Jahner	mjahner5j@example.com	Female	#8863	532b				
202	Lem	Welden	lwelden5l@example.com	Male	#9855	553b				
203	Kristel	Worsell	kworsell5m@example.com	Female	#8d819	3193				
204	Christoforo	Ismail	cismail5n@example.com	Male	#83ff	FF68				
205	Scotty	Hentze	shentze5o@example.com	Male	#ca77	777f				
207	Kimmy	Sabates	ksabates5q@example.com	Female	#aa08	9860				
209		Custy	kcusty5s@example.com	Female						
	Rochester	Foale	rfoale5t@example.com	Male	#80cf					
	Ines	Nadin	inadin5v@example.com	Female						
	Joelie	McLoney	jmcloney5x@example.com							
	Bekki	Farres	bfarres5y@example.com	Female						
217	Morgen	Toyer	mtoyer60@example.com	Male	#a2f70	F701				
(12 rd	ows)									
[cloud	cloud_usen@d394227ea42c ~]\$ [									

psql postgres://demo:password@3.25.204.223:80/sample -c "SELECT \* FROM EMPLOYEES WHERE id>900 AND (last\_name LIKE '%tt%' OR last\_name LIKE '%ll%');"

```
[cloud user@d394227ea42c ~]$
psql postgres://demo:password@3.25.204.223:80/sample -c "SELECT * FROM EMPLOYEES
WHERE id>900 AND (last_name LIKE '%tt%' OR last_name LIKE '%ll%');"
                                                           gender
 id | first name | last name
                                           email
                                                                     favorite color
                    Stegel1
                                 cstegellp3@example.com
                                                            Male
 904 | Corny
                                                                     #d27d0f
                    Waskett
                                 bwaskettpp@example.com
 926
       Bertram
                                                            Male
                                                                     #0f139f
       Millisent
                    Lille
                                 mlilleps@example.com
                                                            Female
 929
                                                                     #129790
                    Riall
                                 jriallpx@example.com
                                                            Male
 934
       Joseph
                                                                     #27a216
       Rici
                    Fallowes
                                 rfallowesq7@example.com
 944
                                                            Female
                                                                     #d97251
                                 dokillq@example.com
                    0kill
 945
       Duky
                                                            Male
                                                                     #12455b
                    Whetnall
                                 gwhetnallql@example.com
                                                            Male
 958
       Georas
                                                                     #4975e3
                    Romanetti
                                 sromanettiqq@example.com
                                                            Male
 963
       Staford
                                                                     #ffea11
                    Willisch
                                 iwillischr3@example.com
 976 l
       Irita
                                                            Female |
                                                                     #b419c6
       Raphae1
                    Gallyon
                                 rgallyonr5@example.com
                                                            Male
                                                                     #091048
 978
                    Hall-Gough
                                 hhallgoughrc@example.com
 985
       Hynda
                                                            Female
                                                                     #c5727b
 994
       Ragnar
                    Brewitt
                                 rbrewittrl@example.com
                                                            Male
                                                                     #1478c3
       Malinde
                                 mpowellrp@example.com
 998
                    Powell
                                                            Female
                                                                     #766951
                                 kpeperellrr@example.com
 1000 | Killie
                    Peperel1
                                                                     #c523eb
                                                            Male
(14 rows)
[cloud_user@d394227ea42c ~]$ [
```

psql postgres://demo:password@3.25.204.223:80/sample -c "SELECT last\_name FROM employees WHERE employees.email LIKE '%II%' AND id <= 100;"

```
[cloud user@d394227ea42c ~]$ psql postgres://demo:password@3.25.204.223:80/sample -c "SELECT last name
FROM employees WHERE employees.email LIKE '%ll%' AND id <= 100;"
    last name
Cansdall
Olivelli
 Grimsdell
 Stillwell
 Cripwell
Dybal1
 Mallord
 Campbell-Dunlop
 Currall
 Yoodall
Collard
Golly
(12 rows)
[cloud_user@d394227ea42c ~]$ [
```

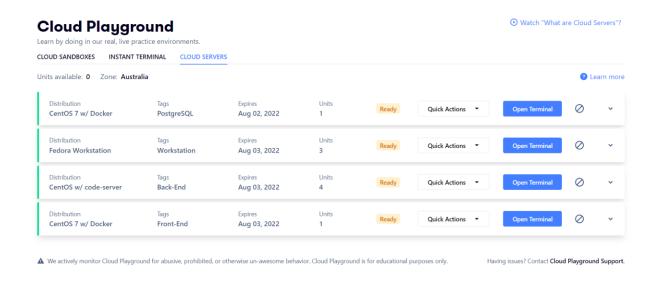
You could continue yourself to into SQL and do more exercise by using Cloud systems.

As you know, we are trying to create a web-based system. The first thing Keith does is set up a sample database server and manage it from another server running as Workstation. In our study, I used rmp, you can practice a lot by using dpkg(Debian-Ubuntu) and changing the variations by making Cloud servers AWS or Google Cloud.

We have just installed the workstation server and database now and there are many components such as front-end & back-end in cloud computing architecture.

As you know, In this way, instead of reloading the whole system by creating a server for the frontend, we can divide the front-end or back-end into parts using microservices. As a cloud engineer, we do the development, deployment and operations(DevOps) of the images of these services, which are update by the developers, and other contributor assigned in task manager.

As an example cloud servers that we can use for the website we will create



More power to your elbow.

Author: Mehmet A. Kir

Source : [Link]