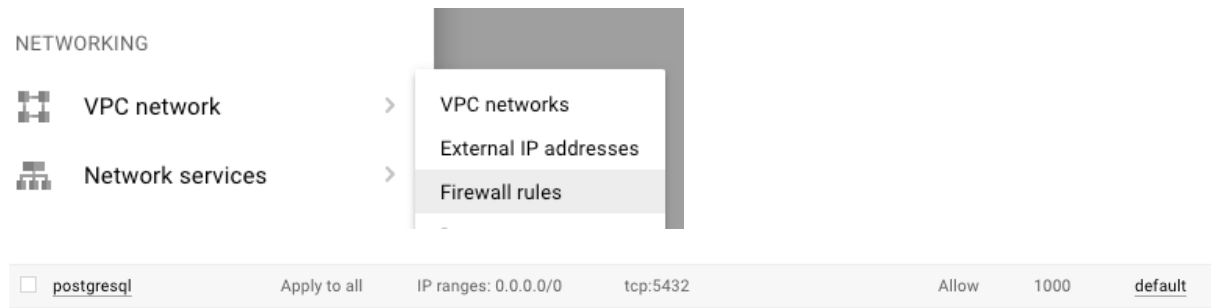Performing the variant where instead of using default Google SQL instance for PostgresSQL, rather install and configure PostgresSQL database into a manually created Google VM:

https://cloud.google.com/community/tutorials/setting-up-postgres

A: STEPS

```
Connected, host fingerprint: ssh-rsa 2048 D8:B3:38:5D:62:21:AC:EB:B2:B1:62:1F:59:EC:18:BE:36:EF:5D:B4
Welcome to Ubuntu 14.04.5 LTS (GNU/Linux 4.4.0-98-generic x86_64)

 * Documentation:  https://help.ubuntu.com/

  System information as of Sun Nov 12 21:07:08 UTC 2017

  System load: 0.23          Memory usage: 1%   Processes:           60
  Usage of /:  11.2% of 9.81GB   Swap usage:   0%    Users logged in: 0

  Graph this data and manage this system at:
    https://landscape.canonical.com/

  Get cloud support with Ubuntu Advantage Cloud Guest:
    http://www.ubuntu.com/business/services/cloud

0 packages can be updated.
0 updates are security updates.

Your Hardware Enablement Stack (HWE) is supported until April 2019.


The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

jy82398n@postgres-tutorial:~$ sudo apt-get update
Ign http://us-central1.gce.archive.ubuntu.com trusty InRelease
Get:1 http://us-central1.gce.archive.ubuntu.com trusty-updates InRelease [65.9 kB]
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports InRelease
Hit http://us-central1.gce.archive.ubuntu.com trusty Release.gpg
Hit http://us-central1.gce.archive.ubuntu.com trusty Release
Ign http://archive.canonical.com trusty InRelease
Get:2 http://archive.canonical.com trusty Release.gpg [916 B]
Get:3 http://archive.canonical.com trusty Release [9,359 B]
Get:4 http://us-central1.gce.archive.ubuntu.com trusty-updates/main Sources [407 kB]
Get:5 http://us-central1.gce.archive.ubuntu.com trusty-updates/restricted Sources [6,322 B]
Get:6 http://us-central1.gce.archive.ubuntu.com trusty-updates/universe Sources [194 kB]
Get:7 http://security.ubuntu.com trusty-security InRelease [65.9 kB]
```

```
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Ign http://us-central1.gce.archive.ubuntu.com trusty InRelease
Get:1 http://us-central1.gce.archive.ubuntu.com trusty-updates InRelease [65.9 kB]
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports InRelease
Hit http://us-central1.gce.archive.ubuntu.com trusty Release.gpg
Hit http://us-central1.gce.archive.ubuntu.com trusty Release
Ign http://archive.canonical.com trusty InRelease
Get:2 http://archive.canonical.com trusty Release.gpg [916 B]
Get:3 http://archive.canonical.com trusty Release [9,359 B]
Get:4 http://us-central1.gce.archive.ubuntu.com trusty-updates/main Sources [407 kB]
Get:5 http://us-central1.gce.archive.ubuntu.com trusty-updates/restricted Sources [6,322 B]
Get:6 http://us-central1.gce.archive.ubuntu.com trusty-updates/universe Sources [194 kB]
Get:7 http://security.ubuntu.com trusty-security InRelease [65.9 kB]
Get:8 http://us-central1.gce.archive.ubuntu.com trusty-updates/multiverse Sources [7,764 B]
Get:9 http://us-central1.gce.archive.ubuntu.com trusty-updates/main amd64 Packages [1,036 kB]
Get:10 http://us-central1.gce.archive.ubuntu.com trusty-updates/restricted amd64 Packages [17.2 kB]
Get:11 http://us-central1.gce.archive.ubuntu.com trusty-updates/universe amd64 Packages [432 kB]
Get:12 http://us-central1.gce.archive.ubuntu.com trusty-updates/multiverse amd64 Packages [14.9 kB]
Get:13 http://us-central1.gce.archive.ubuntu.com trusty-updates/main Translation-en [511 kB]
Get:14 http://archive.canonical.com trusty/partner amd64 Packages [5,361 B]
Get:15 http://us-central1.gce.archive.ubuntu.com trusty-updates/multiverse Translation-en [7,760 B]
Get:16 http://us-central1.gce.archive.ubuntu.com trusty-updates/restricted Translation-en [4,031 B]
Get:17 http://us-central1.gce.archive.ubuntu.com trusty-updates/universe Translation-en [234 kB]
Get:18 http://us-central1.gce.archive.ubuntu.com trusty-backports/main Sources [9,710 B]
Get:19 http://us-central1.gce.archive.ubuntu.com trusty-backports/restricted Sources [28 B]
Get:20 http://us-central1.gce.archive.ubuntu.com trusty-backports/universe Sources [35.4 kB]
Get:21 http://archive.canonical.com trusty/partner Translation-en [4,207 B]
Get:22 http://us-central1.gce.archive.ubuntu.com trusty-backports/multiverse Sources [1,898 B]
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports/main amd64 Packages
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports/restricted amd64 Packages
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports/universe amd64 Packages
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports/multiverse amd64 Packages
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports/main Translation-en
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports/multiverse Translation-en
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports/restricted Translation-en
Hit http://us-central1.gce.archive.ubuntu.com trusty-backports/universe Translation-en
Get:23 http://us-central1.gce.archive.ubuntu.com trusty/main Sources [1,064 kB]
```

```
Preparing to unpack .../postgresql_9.3+154ubuntu1.1_all.deb ...
Unpacking postgresql (9.3+154ubuntu1.1) ...
Selecting previously unselected package postgresql-client.
Preparing to unpack .../postgresql-client_9.3+154ubuntu1.1_all.deb ...
Unpacking postgresql-client (9.3+154ubuntu1.1) ...
Selecting previously unselected package postgresql-contrib-9.3.
Preparing to unpack .../postgresql-contrib-9.3_9.3.19-0ubuntu0.14.04_amd64.deb ...
Unpacking postgresql-contrib-9.3 (9.3.19-0ubuntu0.14.04) ...
Selecting previously unselected package postgresql-contrib.
Preparing to unpack .../postgresql-contrib_9.3+154ubuntu1.1_all.deb ...
Unpacking postgresql-contrib (9.3+154ubuntu1.1) ...
Processing triggers for man-db (2.6.7.1-1ubuntu1) ...
Processing triggers for ureadahead (0.100.0-16) ...
Setting up libxslt1.1:amd64 (1.1.28-2ubuntu0.1) ...
Setting up libossp-uuid16 (1.6.2-1.3ubuntu1) ...
Setting up libpq5 (9.3.19-0ubuntu0.14.04) ...
Setting up postgresql-client-common (154ubuntu1.1) ...
Setting up postgresql-client-9.3 (9.3.19-0ubuntu0.14.04) ...
update-alternatives: using /usr/share/postgresql/9.3/man/man1/psql.1.gz to provide /usr/share/man/man1/psql.1.gz (psql.1.gz) in auto mode
Setting up ssl-cert (1.0.33) ...
Setting up postgresql-common (154ubuntu1.1) ...
Adding user postgres to group ssl-cert

Creating config file /etc/logrotate.d/postgresql-common with new version
Building PostgreSQL dictionaries from installed myspell/hunspell packages...
Removing obsolete dictionary files:
 * No PostgreSQL clusters exist; see "man pg_createcluster"
Setting up postgresql-client (9.3+154ubuntu1.1) ...
Processing triggers for ureadahead (0.100.0-16) ...
Setting up postgresql-9.3 (9.3.19-0ubuntu0.14.04) ...
Creating new cluster 9.3/main ...
  config /etc/postgresql/9.3/main
  data   /var/lib/postgresql/9.3/main
  locale en_US.UTF-8
  port   5432
update-alternatives: using /usr/share/postgresql/9.3/man/man1/postmaster.1.gz to provide /usr/share/man/man1/postmaster.1.gz (postmaster.1.gz) in auto mode
 * Starting PostgreSQL 9.3 database server                                    [ OK ]
Setting up postgresql (9.3+154ubuntu1.1) ...
Setting up postgresql-contrib-9.3 (9.3.19-0ubuntu0.14.04) ...
Setting up postgresql-contrib (9.3+154ubuntu1.1) ...
Processing triggers for libc-bin (2.19-0ubuntu6.13) ...
jy82398n@postgres-tutorial:~$
```

```
Unpacking postgresql-contrib (9.3+154ubuntu1.1) ...
Processing triggers for man-db (2.6.7.1-1ubuntu1) ...
Processing triggers for ureadahead (0.100.0-16) ...
Setting up libxslt1.1:amd64 (1.1.28-2ubuntu0.1) ...
Setting up libossp-uuid16 (1.6.2-1.3ubuntu1) ...
Setting up libpq5 (9.3.19-0ubuntu0.14.04) ...
Setting up postgresql-client-common (154ubuntu1.1) ...
Setting up postgresql-client-9.3 (9.3.19-0ubuntu0.14.04) ...
update-alternatives: using /usr/share/postgresql/9.3/man/man1/psql.1.gz to provide /usr/share/man/man1/psql.1.gz (psql.1.gz) in auto mode
Setting up ssl-cert (1.0.33) ...
Setting up postgresql-common (154ubuntu1.1) ...
Adding user postgres to group ssl-cert

Creating config file /etc/logrotate.d/postgresql-common with new version
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Setting up postgresql-client (9.3+154ubuntu1.1) ...
Processing triggers for ureadahead (0.100.0-16) ...
Setting up postgresql-9.3 (9.3.19-0ubuntu0.14.04) ...
Creating new cluster 9.3/main ...
  config /etc/postgresql/9.3/main
  data   /var/lib/postgresql/9.3/main
  locale en_US.UTF-8
  port   5432
update-alternatives: using /usr/share/postgresql/9.3/man/man1/postmaster.1.gz to provide /usr/share/man/man1/postmaster.1.gz (postmaster.1.gz) in auto mode
 * Starting PostgreSQL 9.3 database server                                    [ OK ]
Setting up postgresql (9.3+154ubuntu1.1) ...
Setting up postgresql-contrib-9.3 (9.3.19-0ubuntu0.14.04) ...
Setting up postgresql-contrib (9.3+154ubuntu1.1) ...
Processing triggers for libc-bin (2.19-0ubuntu6.13) ...
jy82398n@postgres-tutorial:~$ sudo -s
root@postgres-tutorial:~# sudo -u postgres psql postgres
psql (9.3.19)
Type "help" for help.

postgres=# \password postgres
Enter new password:
Enter it again:
postgres=# CREATE EXTENSION adminpack;
CREATE EXTENSION
postgres=#
```

Firewall

Firewall rules

Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked. Learn more

Note: App Engine firewalls are managed here.

Ingress   Egress

Name	Targets	Source filters	Protocols/ports	Action	Priority	Network ^
datalab-network-allow-ssh	Apply to all	IP ranges: 0.0.0.0/0	tcp:22	Allow	1000	datalab-network
postgres-tutorial	Apply to all	IP ranges: 100.1.114.177/32	tcp:5432	Deny	1000	default
default-allow-http	http-server	IP ranges: 0.0.0.0/0	tcp:80	Allow	1000	default
default-allow-https	https-server	IP ranges: 0.0.0.0/0	tcp:443	Allow	1000	default
default-allow-icmp	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	65534	default
default-allow-internal	Apply to all	IP ranges: 10.128.0.0/9	tcp:0-65535, udp:0-65535, 1 more	Allow	65534	default
default-allow-rdp	Apply to all	IP ranges: 0.0.0.0/0	tcp:3389	Allow	65534	default
default-allow-ssh	Apply to all	IP ranges: 0.0.0.0/0	tcp:22	Allow	65534	default

D:

Connecting to rstudio

Connecting with razorsql

File   Edit   Search   DB Tools   Connections   SQL   Results   Tools   Code   View   Window   Help

*Postgres tutorial

<Quick Connect>   On   SQL   postgres

```
 1  select * from station;
 2  INSERT INTO station VALUES('A1','1');
 3  INSERT INTO station VALUES('A2','1');
 4  INSERT INTO station VALUES('A3','1');
 5  INSERT INTO station VALUES('A4','2');
 6  INSERT INTO station VALUES('A5','3');
 7  INSERT INTO station VALUES('A6','1');
 8  INSERT INTO station VALUES('A7','2');
 9  INSERT INTO station VALUES('A8','2');
10  INSERT INTO station VALUES('A9','3');
11
12  select * from station_location;
13  INSERT INTO station_location VALUES('A1',0,0,5);
14  INSERT INTO station_location VALUES('A2',0,5,5);
15  INSERT INTO station_location VALUES('A3',0,10,5);
16  INSERT INTO station_location VALUES('A4',0,15,5);
17  INSERT INTO station_location VALUES('A5',0,20,5);
18  INSERT INTO station_location VALUES('A6',0,25,5);
    INSERT INTO station_location VALUES('A7',0,30,5);
```

212/845   Ln. 6 Col. 38   Lines: 21   INSERT   WRITABLE \n Cp1252   Delimiter: ;

tables   station   station 2   station_location   station_location ...

OFF

	station_name	location_x	location_y	location_z
1	A1	0	0	5
2	A2	0	5	5
3	A3	0	10	5
4	A4	0	15	5
5	A5	0	20	5
6	A6	0	25	5
7	A7	0	30	5
8	A8	0	35	5
9	A9	0	40	5

11:13:44:107 Executing Statement . . . Done. Query Time: 0.031   Row Count: 9

Database
postgres
  Schemas
    information_schema
      Tables
        sql_features
          Columns
            feature_id varchar
            feature_name varchar
            sub_feature_id varchar
            sub_feature_name varchar
            is_supported varchar(3)
            is_verified_by varchar
            comments varchar
          Indexes
          Triggers
          Constraints
        sql_implementation_info
        sql_languages
        sql_packages
        sql_parts
        sql_sizing
        sql_sizing_profiles
      Views
        _pg_foreign_data_wrappers
        _pg_foreign_servers
        _pg_foreign_table_columns
        _pg_foreign_tables
        _pg_user_mappings
        administrable_role_authorizations
        applicable_roles
        attributes
        character_sets
        check_constraint_routine_usage