

Configuring Postgres with OpenSSL

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Introduction

This document provides instructions to install Postgres using YUM and RPM, and to set up SSL in Postgres.

Supported OML and Postgres Versions

Supported Operations Manager for Linux(OML) versions: 9.21.130 and 9.22.190.

Supported Postgres versions: 9.1, 9.2, 9.3, 9.4, and 9.5

Installing Postgres Using YUM

- 1) Ensure that your system has internet connectivity (Check your proxy setting).
- 2) Download the the repo file from the following location and install it:
https://download.postgresql.org/pub/repos/yum/9.5/redhat/rhel-7-x86_64/pgdg-redhat95-9.5-2.noarch.rpm
- 3) Run the following commands to install Postgres server:

```
yum install postgresql95
yum install postgresql95-server
```

The **bin**, **share**, and **lib** directories are created under `/usr/pgsql-<version>`.
- 4) Create the following three directories under `/usr/pgsql-<version>`:

```
cluster, data, index
```
- 5) Change the ownership of all the directories under `/usr/pgsql-<version>` to **postgres:postgres**.

Installing Postgres Using RPM

- 1) Download the RPMs from the following site :
https://yum.postgresql.org/9.5/redhat/rhel-7-x86_64/repoview/postgresqlserver95.group.html
- 2) Install the RPMs in the following order:

```
rpm -Uvh postgresql95-libs-9.5.7-1PGDG.rhel7.x86_64.rpm
rpm -ivh postgresql95-9.5.7-1PGDG.rhel7.x86_64.rpm
rpm -ivh postgresql95-server-9.5.7-1PGDG.rhel7.x86_64.rpm
```

The **bin**, **share**, and **lib** directories are created under `/usr/pgsql-<version>`.
- 3) Create the following three directories under `/usr/pgsql-<version>`:

```
cluster, data, index
```
- 4) Change the ownership of all the directories under `/usr/pgsql-<version>` to **postgres:postgres**.

Installing HPOM

Install the HP Operations Manager as per the instructions in the *HPOM Installation Guide* and ensure that all services are up.

Setting up SSL in Postgres

- 1) Stop the HPOM server using the following command:

```
/opt/OV/bin/ovc -stop
```
 - 2) Log on as *root* user and check the `/etc/passwd` file to get the home directory of the *postgres* user.
 - 3) Open the `.bash_profile` under the home directory of the postgres user and change the line
-

```
[ -f /etc/profile ] && source /etc/profile
```

```
PGDATA=/var/lib/pgsql/data
```

```
export PGDATA
```

to the following:

```
[ -f /etc/profile ] && source /etc/profile
```

```
PGDATA=/usr/pgsql-<version>/cluster
```

```
export PGDATA
```

- 4) Login as postgres user:

```
su -postgres
```

- 5) Navigate to the **bin** directory and stop the postgres server:

```
cd /usr/pgsql-<version>/bin
```

```
./pg_ctl stop
```

- 6) Navigate to the **cluster** directory (the cluster directory is created during installation of postgres) :

```
cd /usr/pgsql-<version>/cluster
```

- 7) Generate a passphrase protected certificate using the following command :

```
openssl req -new -text -out cert.req
```

Sample Output:

```
Generating a 1024 bit RSA private key
```

```
.....++++++
```

```
.....++++++
```

```
writing new private key to 'privkey.pem'
```

```
Enter PEM pass phrase:
```

```
Verifying - Enter PEM pass phrase:
```

```
-----
```

```
You are about to be asked to enter information that will be incorporated into your certificate request, which is called a Distinguished Name or a DN. There are quite a few fields but you can leave some blank by entering ''
```

```
-----
```

```
Country Name (2 letter code) [AU]:
```

```
State or Province Name (full name) [Some-State]:
```

```
Locality Name (eg, city) []:
```

```
Organization Name (eg, company) [Internet Widgits Pty Ltd]:
```

```
Organizational Unit Name (eg, section) []:
```

```
Common Name (eg, YOUR name) []:
```

```
Email Address []:
```

```
Please enter the following 'extra' attributes
```

```
to be sent with your certificate request
```

```
A challenge password []:Singh
```

```
An optional company name []:
```

- 8) Remove the passphrase (this is necessary to start the postmaster automatically) using the following command :

```
openssl rsa -in privkey.pem -out cert.pem
```

Sample Output:

```
Enter pass phrase for privkey.pem:
```

writing RSA key

- 9) Convert the certificate into a self-signed certificate using the following command:
`openssl req -x509 -in cert.req -text -key cert.pem -out cert.cert`
 - 10) Rename the files in data directory of PostgreSQL using the following commands :
`cp cert.pem server.key`
`cp cert.cert server.crt`
 - 11) Change permissions using the following commands:
`chmod 600 server.key`
`chmod 600 server.crt`
 - 12) In the `postgresql.conf` file, change the following parameter :
`ssl = on`
 - 13) Run the following command to start the server:
`/usr/pgsql-<version>/bin/pg_ctl start`
 - 14) To verify, run the command :
`./psql -U postgres -h localhost`
Sample Output:

```
psql (9.5.6)
SSL connection (protocol: TLSv1.2, cipher: ECDHE-RSA-AES256-GCM-SHA384, bits: 256, session: off)
Type "help" for help.

postgres=#
```
 - 15) If you want to enable FIPS, run the following commands :
`/opt/OV/bin/OpC/opcfips convert enable`
`/opt/OV/bin/OpC/opcfips enable`
-