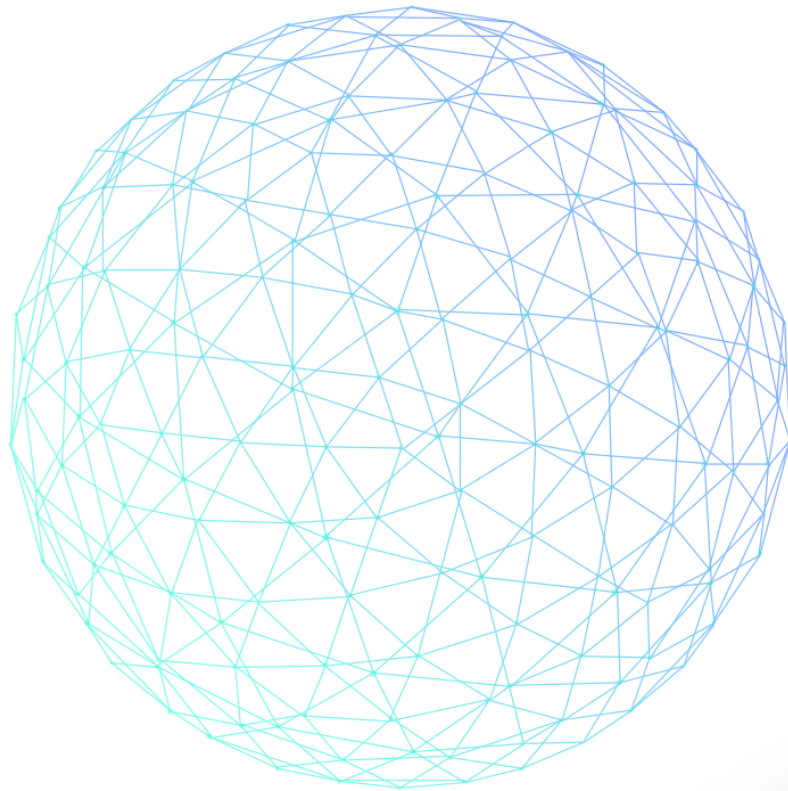


DaaS Platform

Installation Documentation



【Version : 3.6.1】

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1. Environment Check

Check if JDK 1.8 or above is installed and configured on the system, as well as a PostgreSQL database (PostgreSQL 12 recommended).

1.1 Check for JDK Installation

Open a terminal and input to check the Java version. **JDK 1.8** is required

```
java -version
```

```
[root@node1 java]# java -version
java version "1.8.0_251"
Java(TM) SE Runtime Environment (build 1.8.0_251-b08)
Java HotSpot(TM) 64-Bit Server VM (build 25.251-b08, mixed mode)
```

View Java installation files.

```
rpm -qa | grep java
```

If it's not JDK 1.8, delete the related Java files.

If Java is not installed, refer to [JDK Installation Guide](#).

1.2 Check PostgreSQL Installation

Verify if PostgreSQL installation is successful and supports remote access.

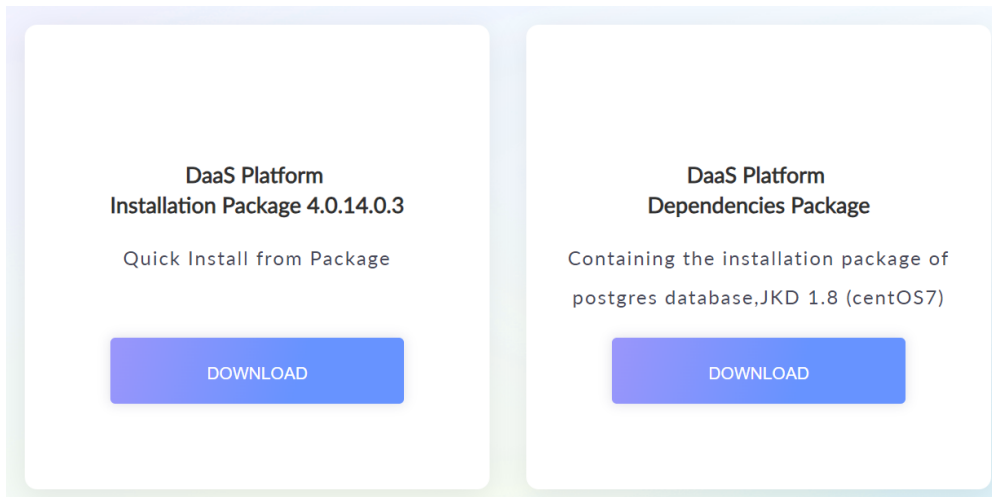
If PostgreSQL is not installed, refer to [PostgreSQL 12 Installation Guide](#).

2. Install DaaS Platform

2.1 Download

Visit the download page <https://www.sqlynx.com>

Select the appropriate software version and click to download.



2.2 Copy and Extract the Software

Create a new 'software' folder on the server.

```
mkdir /software
```

```
[root@node1 ~]# cd ..
[root@node1 /]# ls
bin  dev  home  lib64  media  opt  root  sbin  sys  usr
boot  etc  lib  lost+found  mnt  proc  run  srv  tmp  var
[root@node1 /]# mkdir /software
[root@node1 /]# ls
bin  dev  home  lib64  media  opt  root  sbin  srv  tmp  var
boot  etc  lib  lost+found  mnt  proc  run  software  sys  usr
```

Copy the installation package to the 'software' folder on the server.

Unzip

```
unzip maiconsoftware_< actual_version >.zip
```

```
[root@node1 software]# unzip maiconsoftware_3.1.0.zip
Archive:  maiconsoftware_3.1.0.zip
  creating:  maiconsoftware_3.1.0/
  inflating:  maiconsoftware_3.1.0/maicong-daas.sh
  inflating:  maiconsoftware_3.1.0/Maicong-DaaS-3.1.0-release.jar
  creating:  maiconsoftware_3.1.0/config/
  inflating:  maiconsoftware_3.1.0/config/init_metastore_pg.sql
  inflating:  maiconsoftware_3.1.0/config/driver.conf
  inflating:  maiconsoftware_3.1.0/config/maicong.yaml
  creating:  maiconsoftware_3.1.0/lib/
  inflating:  maiconsoftware_3.1.0/lib/mysql-connector-java-8.0.18.jar
  inflating:  maiconsoftware_3.1.0/lib/ojdbc8-19.3.0.0.jar
  inflating:  maiconsoftware_3.1.0/lib/postgresql-42.2.8.jar
  inflating:  maiconsoftware_3.1.0/lib/ImpalaJDBC42.jar
  inflating:  maiconsoftware_3.1.0/lib/mssql-jdbc-9.2.1.jre8.jar
```

***Tip:** If unzip is not installed, install it using the following command:

```
yum install -y unzip zip
```

2.3 Initialize the Database

Assuming PostgreSQL 12 database installation is complete on the same physical server as Maicong DaaS platform.

Create a new database: maicong (or use any name)

Enter psql

```
psql -h <local_IP> -U postgres
```

```
[root@node1 software]# psql -h 172.17.82.137 -U postgres
```

Execute the command:

```
create database maicong;
```

```
-bash-4.2$ psql
psql (12.3)
Type "help" for help.

postgres=# create database maicong;
CREATE DATABASE
postgres=#
```

View the databases created:

```
select * from pg_database;
```

```
postgres=# select * from pg_database;
 oid | datname | datdba | encoding | datcollate | datctype | datistemplate | datallow
conn | datconnlimit | datlastsysoid | datfrozensid | datminmxid | dattablespace |
 datacl
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 14185 | postgres |      10 |          6 | en_US.UTF-8 | en_US.UTF-8 | f           |
      |          -1 |          14184 |          479 |          1 |          1663 |
 16384 | maicong   |      10 |          6 | en_US.UTF-8 | en_US.UTF-8 | f           |
      |          -1 |          14184 |          479 |          1 |          1663 |
      1 | template1 |      10 |          6 | en_US.UTF-8 | en_US.UTF-8 | t           |
      |          -1 |          14184 |          479 |          1 |          1663 |
s,postgres=CTc/postgres)
 14184 | template0 |      10 |          6 | en_US.UTF-8 | en_US.UTF-8 | t           |
      |          -1 |          14184 |          479 |          1 |          1663 |
s,postgres=CTc/postgres)
(4 rows)
```

***Tip:** Initialize PostgreSQL's system library, SQL file located in config/init_db.sql,
or init_metastore_pg.sql

Execute the database initialization.

```
psql -h <local_IP> -d maicong -U postgres -f /<path_to_extracted_files>/config/init_db.sql
```

```
-bash-4.2$ psql -d maicong -U postgres -f /software/maicongsoftware_3.1.0/config/init_metastore_pg.sql
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE INDEX
CREATE INDEX
```

2.4 Modify Configuration Files

2.4.1 Modify the config/maicong.yaml File

Enter the maicongsoftware_<actual_version> directory and update the configuration file according to the example.

```
vi config/maicong.yaml
```

***Tip:** There should be an English space after the colon “:”.

```

===== MaiCongSoftWare Configuration =====
#
# NOTE: MAICONGSOFTWARE comes with reasonable defaults for most settings.
#       Before you set out to tweak and tune the configuration, make sure you
#       understand what are you trying to accomplish and the consequences.
#
# The primary way of configuring a node is via this file. This template lists
# the most important settings you may want to configure for a production cluster.
#
# Please consult the documentation for further information on configuration options:
# http://www.maicongs.com/#/listdocu
#
# ----- Network -----
# ----- API -----
# the parameter valid for user use restful api to create api and download, backend server ip
# and port
# some times maybe virtual IP for cluster, fg nginx need to set to nginx server ip and port,
# format: http://localhost:8080
# must
virtualIP: http://192.168.1.10:8083
# set the server run port for backend and frontend, this is backend port
# must
server.port: 8083

# ----- DB configuration -----
-----
master.datasource.driverClassName: org.postgresql.Driver
master.datasource.initial-size: 10
master.datasource.max-active: 100
master.datasource.min-idle: 10
# set the username and password for db use
master.datasource.username: postgres
master.datasource.password: 123456
# set the connection url for db
master.datasource.url: jdbc:postgresql://192.168.1.10:5432/maicong
#master.datasource.url: jdbc:postgresql://192.168.1.10:5432/maicong
# ----- CUSTOM Only for Hadoop-----
-----
hadoop.metastore.upperlow: 1
# set the hadoop db filter, if you don't want to get all hadoop dbs, you can set the paramete
r
# the format is: dbID1:dbName1,dbName2;dbID2:dbName1,dbName2
config.hadoop.filter:
# set the filePath for hadoop kerberos certification files
filePath: /software/maicongsoftware/keytab
# set the server is master, if master, set 1, if not slave. one cluster only one master
master: 1

# ----- LOG -----
# log level, you can set info, error, warn, debug
logging.level.com.mc.dao: info

```

***Tip:**

virtualIP: Server address:port

server.port: Default system startup port

master.datasource.password: PostgreSQL connection password (a space is required after the colon)

master.datasource.url: The connection string in the PostgreSQL database includes IP, port, and database name (here as maicong, which is the database name created in the initial installation of POSTGRESQL12)

filePath: Path to store the Kerberos keytab in Hadoop (this needs to be configured if connecting to Hadoop Kerberos, otherwise it's not needed).

2.4.2 Modify the static/config.js File

BASE_URL= "local backend address: port"

```
vi static/config.js
```

```
window.global_config = {  
  BASE_URL: "http://(IP address):8083/",  
};
```

2.5 Start Up

Add execution permissions to the startup file app.sh

```
chmod +x maicong-daas.sh
```

Configure Java startup memory

```
vi maicong-daas.sh
```

Modify -xms and -mxm to startup memory and maximum memory (adjust according to the actual server situation)


```

#!/bin/bash
SIGNAL=${SIGNAL:-TERM}
SHELL_FOLDER=$(cd "$(dirname "$0")";pwd)
APP_JAR=$(cd $SHELL_FOLDER;ls Maicong-DaaS-*.jar)
LOG_PATH=$SHELL_FOLDER/log
PID=""
CMD=""

JAVA_OPTS="
-server
-Xms2g
-Xmx4g
-XX:+UseG1GC
-XX:+UseStringDeduplication
-XX:+AlwaysPreTouch
-XX:+PrintGCDetails
-XX:+PrintGCTimeStamps
-XX:+PrintGCCause
-Xloggc:$LOG_PATH/maicong-daas-gc.log
-XX:+HeapDumpOnOutOfMemoryError
-XX:HeapDumpPath=$LOG_PATH/maicong-daas-heapdump
-Dfile.encoding=utf-8"

start(){
    if [ -n "$PID" ]; then
        echo -e "\e[31mmaicong-daas server is running \e[0m"
    fi
}
    
```

Start the application:

```
./maicong-daas.sh start
```

```

[root@node1 maicongsoftware_3.1.0.2]# chmod +x maicong-daas.sh
[root@node1 maicongsoftware_3.1.0.2]# ./maicong-daas.sh start

maicong daas

maicong-daas server is started.
JAVA_OPTS:
-server
-Xms2g
-Xmx4g
-XX:+UseG1GC
-XX:+UseStringDeduplication
-XX:+AlwaysPreTouch
-XX:+PrintGCDetails
-XX:+PrintGCTimeStamps
-XX:+PrintGCCause
-Xloggc:/software/maicongsoftware_3.1.0.2/log/maicong-daas-gc.log
-XX:+HeapDumpOnOutOfMemoryError
-XX:HeapDumpPath=/software/maicongsoftware_3.1.0.2/log/maicong-daas-heapdump
-Dfile.encoding=utf-8
    
```

***Tip:** Currently, the system needs to be started in the folder where maicong-daas.sh is located.

Stop the application:

```
./maicong-daas.sh stop
```

Appendix: The log file is in log/maicong-daas-console.log

```

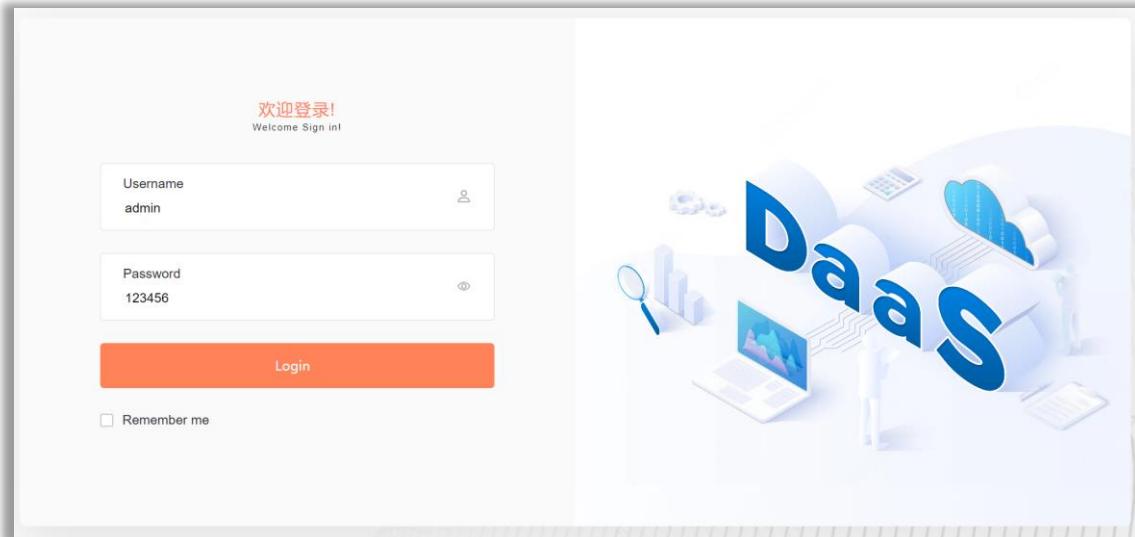
2022-05-23 17:00:56.830 [main] INFO    com.mc.MainApplication - Starting MainApplication v3.1.0
.1-release on node1 with PID 2371 (/software/maicongsoftware_3.1.0.2/Maicong-DaaS-3.1.0.1-rel
ease.jar started by root in /software/maicongsoftware_3.1.0.2)
2022-05-23 17:00:56.834 [main] INFO    com.mc.MainApplication - No active profile set, falling
back to default profiles: default
2022-05-23 17:00:58.918 [main] INFO    o.s.boot.web.embedded.tomcat.TomcatWebServer - Tomcat in
itialized with port(s): 8083 (http)
2022-05-23 17:00:58.936 [main] INFO    org.apache.coyote.http11.Http11NioProtocol - Initializin
g ProtocolHandler ["http-nio-8083"]
2022-05-23 17:00:58.937 [main] INFO    org.apache.catalina.core.StandardService - Starting serv
ice [Tomcat]
2022-05-23 17:00:58.937 [main] INFO    org.apache.catalina.core.StandardEngine - Starting Servl
et engine: [Apache Tomcat/9.0.27]
2022-05-23 17:00:59.034 [main] INFO    o.a.c.core.ContainerBase.[Tomcat].[localhost].[/] - Init
ializing Spring embedded WebApplicationContext
2022-05-23 17:00:59.034 [main] INFO    org.springframework.web.context.ContextLoader - Root Web
ApplicationContext: initialization completed in 2132 ms
2022-05-23 17:01:00.851 [main] INFO    o.s.scheduling.concurrent.ThreadPoolTaskExecutor - Initia
lizing ExecutorService
2022-05-23 17:01:00.852 [main] INFO    o.s.scheduling.concurrent.ThreadPoolTaskExecutor - Initia
lizing ExecutorService 'exportExecutor'
2022-05-23 17:01:01.191 [main] INFO    o.s.b.a.web.servlet.WelcomePageHandlerMapping - Adding w
elcome page: ServletContext resource [/index.html]
2022-05-23 17:01:01.497 [main] INFO    o.s.scheduling.concurrent.ThreadPoolTaskScheduler - Init
ializing ExecutorService 'taskScheduler'
2022-05-23 17:01:01.572 [main] INFO    org.apache.coyote.http11.Http11NioProtocol - Starting Pr
otocolHandler ["http-nio-8083"]
2022-05-23 17:01:01.621 [main] INFO    org.mortbay.log - Logging to Logger[org.mortbay.log] via
org.mortbay.log.Slf4jLog
2022-05-23 17:01:01.647 [main] INFO    o.s.boot.web.embedded.tomcat.TomcatWebServer - Tomcat st
arted on port(s): 8083 (http) with context path ''
2022-05-23 17:01:01.652 [main] INFO    com.mc.MainApplication - Started MainApplication in 6.32
3 seconds (JVM running for 8.028)
2022-05-23 17:01:02.012 [main] INFO    com.alibaba.druid.pool.DruidDataSource - {dataSource-1}
inited
maicong-daas-log (END)

```

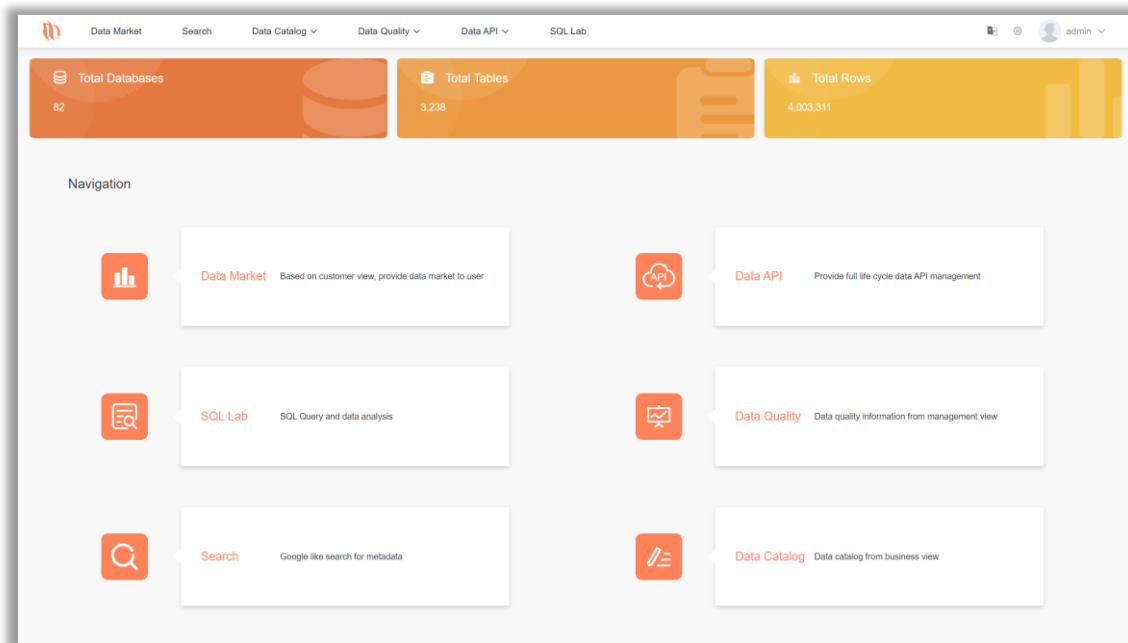
2.6 Verify Installation

Test login

Visit ip:port, and login.



If this interface is displayed, it means login is successful.



Enter the initial username and password: **admin/123456** to login and proceed with further configuration.

3. Appendix

3.1 Install JDK

Create a new folder and copy the JDK installation package

Create a new folder /usr/java

```
mkdir /usr/java
```

Copy the JDK installation package to the /usr/java directory

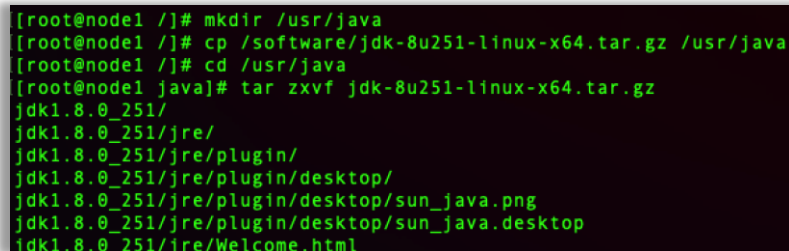
```
cp /software/jdk_8u251_linux_x64.tar.gz /usr/java
```

Move to the /usr/java directory

```
cd /usr/java/
```

Unzip

```
tar zxvf jdk_8u251_linux_x64.tar.gz
```



```
[root@node1 ~]# mkdir /usr/java
[root@node1 ~]# cp /software/jdk-8u251-linux-x64.tar.gz /usr/java
[root@node1 ~]# cd /usr/java
[root@node1 java]# tar zxvf jdk-8u251-linux-x64.tar.gz
jdk1.8.0_251/
jdk1.8.0_251/jre/
jdk1.8.0_251/jre/plugin/
jdk1.8.0_251/jre/plugin/desktop/
jdk1.8.0_251/jre/plugin/desktop/sun_java.png
jdk1.8.0_251/jre/plugin/desktop/sun_java.desktop
jdk1.8.0_251/jre/Welcome.html
```

Configure the Java environment, modify the /etc/profile file.

```
vi /etc/profile
```

Add the following at the end of the file

```
export JAVA_HOME=/usr/java/jdk1.8.0_251
```

```
export
```

```
CLASSPATH=.:${JAVA_HOME}/jre/lib/rt.jar:${JAVA_HOME}/lib/dt.jar:${JAVA_HOME}/lib/tools.jar
```

```
export PATH=$PATH:${JAVA_HOME}/bin
```

```
unset i
unset -f pathmunge

export JAVA_HOME=/usr/java/jdk1.8.0_251
export CLASSPATH=.:${JAVA_HOME}/jre/lib/rt.jar:${JAVA_HOME}/lib/dt.jar:${JAVA_HOME}/lib/tools.jar
export PATH=$PATH:${JAVA_HOME}/bin
```

Make the environment variables effective, execute the following command.

```
source /etc/profile
```

Test the Java installation effect

```
java -version
```

```
[root@node1 java]# java -version
java version "1.8.0_251"
Java(TM) SE Runtime Environment (build 1.8.0_251-b08)
Java HotSpot(TM) 64-Bit Server VM (build 25.251-b08, mixed mode)
```

If the above information appears, it means the installation is successful.

3.2 Install POSTGRESQL12

3.2.1 Installation Package

Unzip

```
unzip pg12.zip
```

```
[root@node1 software]# unzip pg12.zip
Archive:  pg12.zip
  inflating: libicu-50.2-3.el7.x86_64.rpm
  inflating: pgadmin4-4.22-x86.exe
  inflating: postgresql12-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-contrib-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-devel-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-libs-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-plperl-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-plpython-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-plpython3-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-pltcl-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-server-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-test-12.3-1PGDG.rhel7.x86_64.rpm
```

3.2.2 Install Dependencies

```
yum -y install libicu
```

```
yum -y install libxslt
```

Install the rpm packages in order

```
rpm -ivh postgresql12-libs-12.3-1PGDG.rhel7.x86_64.rpm
```

```
rpm -ivh postgresql12-12.3-1PGDG.rhel7.x86_64.rpm
```

```
rpm -ivh postgresql12-server-12.3-1PGDG.rhel7.x86_64.rpm
```

```
rpm -ivh postgresql12-contrib-12.3-1PGDG.rhel7.x86_64.rpm
```

```
[root@node1 pgl2]# rpm -ivh postgresql12-libs-12.3-1PGDG.rhel7.x86_64.rpm
Preparing...##### [100%]
Updating / installing...
 1: postgresql12-libs-12.3-1PGDG.rhel7##### [100%]
[root@node1 pgl2]# rpm -ivh postgresql12-12.3-1PGDG.rhel7.x86_64.rpm
Preparing...##### [100%]
Updating / installing...
 1: postgresql12-12.3-1PGDG.rhel7##### [100%]
[root@node1 pgl2]# rpm -ivh postgresql12-server-12.3-1PGDG.rhel7.x86_64.rpm
Preparing...##### [100%]
Updating / installing...
 1: postgresql12-server-12.3-1PGDG.rhel7##### [100%]
[root@node1 pgl2]# rpm -ivh postgresql12-contrib-12.3-1PGDG.rhel7.x86_64.rpm
Preparing...##### [100%]
Updating / installing...
 1: postgresql12-contrib-12.3-1PGDG.rhel7.x86_64.rpm##### [100%]
[root@node1 pgl2]#
```

3.2.3 Database Initialization

```
/usr/pgsql-12/bin/postgresql-12-setup initdb
```

```
[root@node1 software]# /usr/pgsql-12/bin/postgresql-12-setup initdb
Initializing database ... OK
[root@node1 software]#
```

Configure to start on boot and start

```
systemctl enable postgresql-12
```

```
systemctl start postgresql-12
```

```
[root@node1 software]# systemctl enable postgresql-12
Created symlink from /etc/systemd/system/multi-user.target.wants/postgresql-12.service to /usr/lib/systemd/system/postgresql-12.service.
[root@node1 software]# systemctl start postgresql-12
[root@node1 software]# systemctl status postgresql-12
● postgresql-12.service - PostgreSQL 12 database server
   Loaded: loaded (/usr/lib/systemd/system/postgresql-12.service; enabled; vendor preset: disabled)
   Active: active (running) since — 2022-05-23 15:44:58 CST; 16s ago
     Docs: https://www.postgresql.org/docs/12/static/
   Process: 1654 ExecStartPre=/usr/pgsql-12/bin/postgresql-12-check-db-dir ${PGDATA} (code=exited, status=0/SUCCESS)
    Main PID: 1660 (postmaster)
      CGroup: /system.slice/postgresql-12.service
              └─1660 /usr/pgsql-12/bin/postmaster -D /var/lib/pgsql/12/data/
                 └─1662 postgres: logger
                    └─1664 postgres: checkpointer
                       └─1665 postgres: background writer
                          └─1666 postgres: walwriter
                             └─1667 postgres: autovacuum launcher
                                └─1668 postgres: stats collector
                                   └─1669 postgres: logical replication launcher

5月 23 15:44:58 node1 systemd[1]: Starting PostgreSQL 12 database server...
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.860 CST [1660] LOG:  start...bit
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.860 CST [1660] LOG:  liste...432
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.860 CST [1660] LOG:  could...ess
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.860 CST [1660] HINT:  Is a...ry.
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.861 CST [1660] LOG:  liste...32"
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.863 CST [1660] LOG:  liste...32"
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.871 CST [1660] LOG:  redir...ess
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.871 CST [1660] HINT:  Futu...g".
5月 23 15:44:58 node1 systemd[1]: Started PostgreSQL 12 database server.
Hint: Some lines were ellipsized, use -l to show in full.
```

Modify Password

Switch to the postgres user to execute

```
su - postgres
```

```
psql
```

```
alter user postgres with password '123456';
```

```
\q
```

```
[root@node1 ~]# su - postgres
Last login: Thu Mar 11 12:51:07 CST 2021 on pts/0
-bash-4.2$ psql
psql (12.3)
Type "help" for help.

postgres=# alter user postgres with password '123456';
ALTER ROLE
postgres=# \q
-bash-4.2$
```

3.2.4 Other Database Configurations

Use the root user to execute

Turn off the firewall

```
systemctl stop firewalld.service
```

Disable boot start

```
systemctl disable firewalld.service
```

Check firewall status

```
firewall-cmd --state
```

Modify the configuration file postgresql.conf

Change IP binding, modify the listening address to "*"

Open and edit the file `"/var/lib/pgsql/12/data/postgresql.conf"`,

change `"#listen_addresses = 'localhost'"` to `"listen_addresses = *"`

```
vi /var/lib/pgsql/12/data/postgresql.conf
```



```

#-----
# CONNECTIONS AND AUTHENTICATION
#-----

# - Connection Settings -
listen_addresses = '*'          # what IP address(es) to listen on;
                                # comma-separated list of addresses;
                                # defaults to 'localhost'; use '*' for all
                                # (change requires restart)
#port = 5432                    # (change requires restart)
max_connections = 100          # (change requires restart)
#superuser_reserved_connections = 3 # (change requires restart)
#unix_socket_directories = '/var/run/postgresql, /tmp' # comma-separated list of directories
                                # (change requires restart)
#unix_socket_group = ''        # (change requires restart)
#unix_socket_permissions = 0777 # begin with 0 to use octal notation
                                # (change requires restart)
#bonjour = off                 # advertise server via Bonjour
                                # (change requires restart)
#bonjour_name = ''            # defaults to the computer name
                                # (change requires restart)
    
```

Modify the configuration file pg_hba.conf

Allow all IPs access

Open and edit the file “/var/lib/pgsql/12/data/pg_hba.conf”

```
vi /var/lib/pgsql/12/data/pg_hba.conf
```

Add at the end of the file

```
host all all 0.0.0.0/0 md5
```

```

# replication privilege.
local replication all trust
host replication all 127.0.0.1/32 trust
host replication all ::1/128 trust
host all all 0.0.0.0/0 md5
    
```

3.2.5 Restart

Restart the postgresql server to apply the settings.

```
sudo systemctl restart postgresql-12
```

```

[root@node1 software]# sudo systemctl restart postgresql-12
[root@node1 software]# systemctl status postgresql-12
● postgresql-12.service - PostgreSQL 12 database server
   Loaded: loaded (/usr/lib/systemd/system/postgresql-12.service; enabled; vendor preset: disabled)
   Active: active (running) since 2022-05-23 16:00:40 CST; 29s ago
     Docs: https://www.postgresql.org/docs/12/static/
   Process: 1759 ExecStartPre=/usr/pgsql-12/bin/postgresql-12-check-db-dir ${PGDATA} (code=exited, status=0/SUCCESS)
    Main PID: 1767 (postmaster)
   CGroup: /system.slice/postgresql-12.service
           └─1767 /usr/pgsql-12/bin/postmaster -D /var/lib/pgsql/12/data/
             └─1769 postgres: logger
               └─1771 postgres: checkpointer
                 └─1772 postgres: background writer
                   └─1773 postgres: walwriter
                     └─1774 postgres: autovacuum launcher
                       └─1775 postgres: stats collector
                         └─1776 postgres: logical replication launcher
    
```